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The Field of the Electric Truck

The Electric Truck is the Logical Unit for the Short-Haul, Frequent-Stop Route. It Was Never Intended to Compete With the Gas Truck

THE electric truck is fundamentally a city delivery truck. Its range ties it to a radius of from 15 to 20 miles from the garage or loading platform. Within that territory its economy makes it advisable to use it wherever possible.

How much business falls within the 30 or 40 miles a day classification? Electric truck advocates claim 75 per cent to 85 per cent of all city delivery.

Its biggest users at present are bakeries, laundries, express and warehouse companies, department stores and retailers, dairies, ice

cream, and public service companies. It is admirably adapted to the delivery of coal and ice and indeed any type of city delivery where delivery or traffic stops are frequent and on which the routes are less than 40 miles long for light or 30 miles for heavy delivery. Such routes comprise the majority of all city routes.

Bakers Large Users of Electrics

Bakers need no additional evidence as to the value of the electric truck. It is more extensively used here than in any other field. There are between 500 and 600 electric

trucks in use by the bakers of New York City alone.

Delivery costs the baker 20 cents out of every dollar he receives. The average bakery route is 16 miles long and 85 per cent of all bakery routes fall within the electric truck radius. The electric trucks used range from $\frac{1}{2}$ to 1 ton capacity. The cost of current on a bakery route is about \$68 per year. Battery renewal runs about \$135 annually.

As wholesale routes have from 60 to 90 stops and retail routes run about 200 to 250 stops—the electric costs much less to run than the gas truck, as its power can be snapped



Some of the Electrics Employed by the American Railway Express in the Philadelphia Territory
Approximately 1400 are used by this organization throughout the country

on and off whereas the gas truck engine is practically always left running. As compared to horse and wagon, it saves a sum equivalent to 2½ to 3 per cent of the bakery's gross business for the year.

Laundries Have Short Routes

Delivery costs the laundry owner 23 per cent to 28 per cent of his gross receipts. The delivery problem is similar to that in the bakery field but the proportion of long routes is somewhat smaller. Eighty to 90 per cent of all laundry delivery can be handled with electrics. The average route is about 14 miles long. The trucks used are ½ ton, ¾ ton and 1 ton sizes. The saving varies from 2 per cent to 7 per cent of the total business done.

Express companies are probably the biggest users of electric trucks next to bakeries, there being nearly 600 electric trucks in the fleets of 24 express and warehouse companies in the New York City territory. The 2 ton truck is the size commonly used. As the expensive horse-drawn wagons still used by express companies wear out, they will probably all be replaced by electric trucks, as this field keeps costs and is sold on the electric truck to a greater extent than any other.

As Compared to the Team

Between 70 per cent and 80 per cent of all ice cream routes can be run by electric trucks, the remaining 20 per cent to 30 per cent being long hauls to suburban and country points.

The loads are very heavy in this field, 3½ ton trucks being most in demand. As the comparison is between truck and team rather than truck and single horse—the cost comparison is even more favorable to the electric truck than in other fields.

The electric truck is subjected to severe overloading in the ice cream field and where possible the 5-ton job should be sold. Delivery cost in this field ranges from 25 per cent to 30 per cent.

The department store field is another field in which the electric truck is firmly established. Such nationally known stores as Marshall Field Co., Gimbel Brothers, R. H. Macy & Co., John Wanamaker, L. Bamberger & Co., Abraham and Straus, H. Batterman & Co., Altman's, McCreery's, Saks and many others use them. In New York alone 18 department stores use over 400 electric trucks.

Department Stores Sold on the Electric

After the express companies, department stores as a class have gone farthest in the analysis of their delivery cost and are sold on the electric truck. Selling to them is rather a matter of route analysis than cost analysis.

In the dairy field, for house to house delivery, the electric truck has only one rival, the single horse wagon. It may be stated with approximate accuracy that on any route long enough to justify the gas truck, milk could not be sold at a profit. Delivery costs about 25 per cent of gross income.

¶ Over 500 electrics alone are used by bakers in New York City.

¶ 80 to 90 per cent of all laundry deliveries can be handled by the electric truck.

¶ 70 to 80 per cent of all ice cream routes can be run by electrics.

¶ There is room for 100,000 electrics in the milk field—this field offers big opportunities for the energetic dealers.

¶ The electric truck is the logical unit to replace the horse and team. It is not a competitor of the gas truck in its proper field—the short-haul, frequent-stop route.

Dairy routes are usually short, ranging between 8 and 11 miles. The electric truck gets over the route quicker than the horse that knows the route and enables the driver to make 15 per cent to 25 per cent more deliveries. The cost of current averages about \$90 a year.

Dairies which use electrics also report that their patrons appreciate its noiselessness and complain if the electric is temporarily replaced by horses.

The electric truck increases profits in the dairy business by 10 per cent to 25 per cent, depending on circumstances and gives considerably better service.

Milk Business Offers Big Outlet for Electrics

The milk business offers a great future field for the electric truck and one that the gas truck has barely succeeded in scratching. Here alone is room for 100,000 electric trucks.

The delivery of ice is a very much neglected field for which it is admirably adapted. The hauls are short, the loads heavy and the competition against teams and wagons where the cost comparison is more favorable than on any other basis. Delivery costs around 45 per cent of gross receipts. On the average team route the electric will save from 25 per cent to 35 per cent on delivery cost.

This field should be cultivated vigorously as it affords room for at least 50,000 electrics without displacing a single gas truck. Properly stored and cared for an electric should last 20 years in this seasonal business.

Coal delivery is another field which has been neglected by the electric truck salesman but to which the electric is well adapted. Delivery in this field runs about 15 per cent of gross receipts.

Practically all city coal delivery falls within the range of the electric truck. Here again the electric truck encounters the two-horse wagon and big gas trucks as competitors.

The running cost of the electric is always much less than the team—in the case of the quality gas truck the initial expense also is little if any higher.

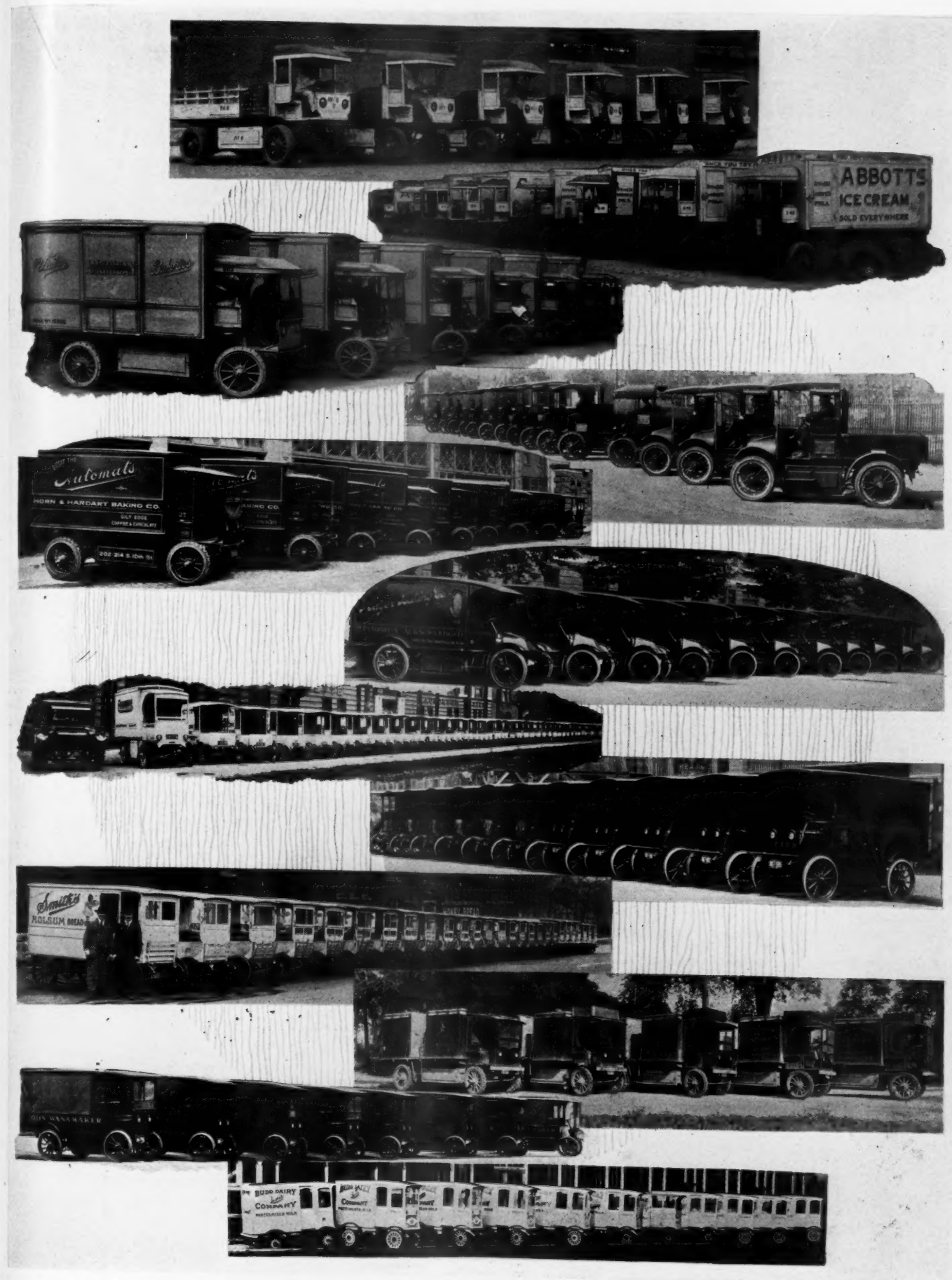
Some of the remaining electric truck prospects are public service companies, publishers, wholesale grocers, packers, confectioners, bottlers, wholesale tobacco, drug jobbers, post office departments, etc.

In fact, any concern which has routes falling within the electric's range should use electrics.

The very reliability and sturdiness of the electric has caused it to be neglected for one important feature—reserve equipment. The writer has in mind a bakery which uses 15 electrics for 15 routes and over 40 gas trucks for 23 routes; a laundry which uses 5 electrics for 5 routes and 15 gas trucks for 9 routes. It may be stated that the majority of electric truck users carry no reserve equipment. This is wrong and it is up to the electric truck dealer to prove it. There should be at least 21 electrics for every 20 routes and 11 electrics for every 10 routes would be better.

The reason this has not been done is that the electric's retirement for painting and overhauling can be controlled by the user whereas he carries his other reserve equipment to cover breakdowns.

However, as a gas truck's expenses on an electric truck route are considerable higher, careful analysis will show the expediency of carrying reserve electric equipment.



Proof That Those Who Have Investigated the Advantages of the Electric Are Satisfied

The mere fact that the Electric Fleet can be found in most every line of business indicates that the electric has those qualifications which make it economical in city work

The Characteristics of the Electric Truck

This Article Answers Many Questions for the Dealer Who is Contemplating Handling a Line of Electrics. It Shows Why the Selling of Gas Trucks and Electrics by the Same Dealer Will Cut Down His Overhead and at the Same Time Make Him a Better Dealer and a Merchandiser of Transportation

WHEN a gas truck dealer takes on a line of electrics, both he and his salesmen are already equipped with much of the mechanical knowledge that they will require to sell electric trucks. Many of the mechanical features of the electric truck and the gas truck are similar. For example, the frame, shafts, drive, steering gear, springs, braking apparatus, joints, lubrication and bearings do not differ in any essential on both trucks. The electrical system of the electric truck is so similar in principle to the starting and lighting system of a gas truck, that it might be termed its "Big Brother." It is bigger, yet simpler, because the demands made upon it are fewer.

The drives in the electric truck field include the same types as are used in the gas truck field, such as the well-known worm drive, bevel gear drive, double reduction chain drive, two and four motor drive, balance gear drive, etc. Most of them are familiar to gas truck salesmen and dealers. They know how to explain them, and the dealer's mechanic knows how to service them.

Selling Transportation Produces Results

In most cases, gas truck salesmen know something about selling transportation instead of simply selling trucks—how to analyze routes, how to analyze costs and on what data to recommend one type of truck instead of another.

The main difference between the aver-

age gas truck salesman and the average electric truck salesman is that the latter is unusually much better schooled in selling transportation. There are more fleets sold in the electric truck field than there are in the gas truck field in proportion to the total number of both trucks built yearly. It is the custom in the electric truck field to look upon the delivery problem as a whole, analyze all the factors carefully, and show the prospect the savings in dollars and cents that the electric truck will make for him. That is why electric truck salesmen wipe out twenty-five, fifty and one hundred horse routes at a clip. They are able to prove that electrics are cheaper.

What the Salesman Must Know

Hence the dealer who takes on a line of electric trucks should be prepared to sell on a transportation basis. Incidentally, this more thorough selling method, once his salesmen have become trained in it, will be reflected in increased gas truck sales, for gas trucks should also be sold on a transportation basis.

This means that the three big classifications of delivery expense, investment, operation and maintenance, must be thoroughly understood.

The salesman must know how to figure the total cost of horse installation, electric truck installation and gas truck installation. He must know every item of investment, because if he does not, his prospect is going to forget some expensive

ones when they compare the cost of horses and wagons or gas trucks with electrics.

He must also know the cost of operation for all three vehicles—how much it will cost to keep a horse in feed and bedding, how much it will cost for gasoline to run a certain route, and how much the electric will cost for current and battery expense.

He must know the probable life of the horse, harness, wagon, gas truck and electric truck. He must have an idea of the cost of overhaul, of caring for horses, etc.

In a word, in selling electric trucks, he must go further than merely knowing his truck. He must know all about the forty odd items that make up delivery expense.

A selling point that cuts down the investment cost of the electric truck is the small housing space it requires. Many electric truck users store their trucks at the loading platform, as there is no fire risk or danger from freezing. In the garage the electric truck takes up less space than the gas truck and only from a third to a fifth of the space of stable, wagon house, harness room, hay loft, etc.

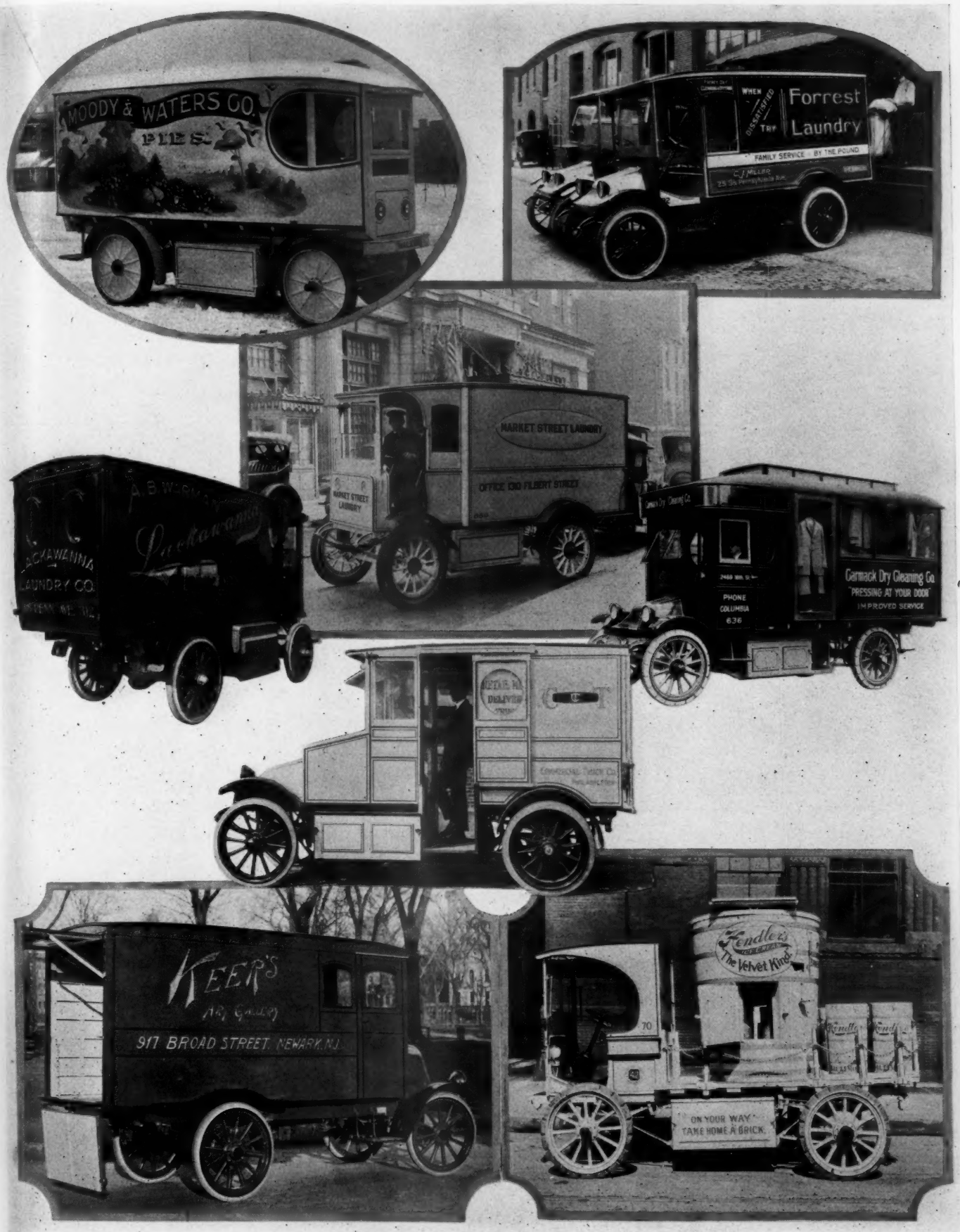
The Question of First Cost

There is a great deal of confusion among buyers regarding this first cost item which it is up to the electric truck dealer and salesmen to dispel. When you add to the cost of horse and wagon, the cost of harness, blankets and the extra housing



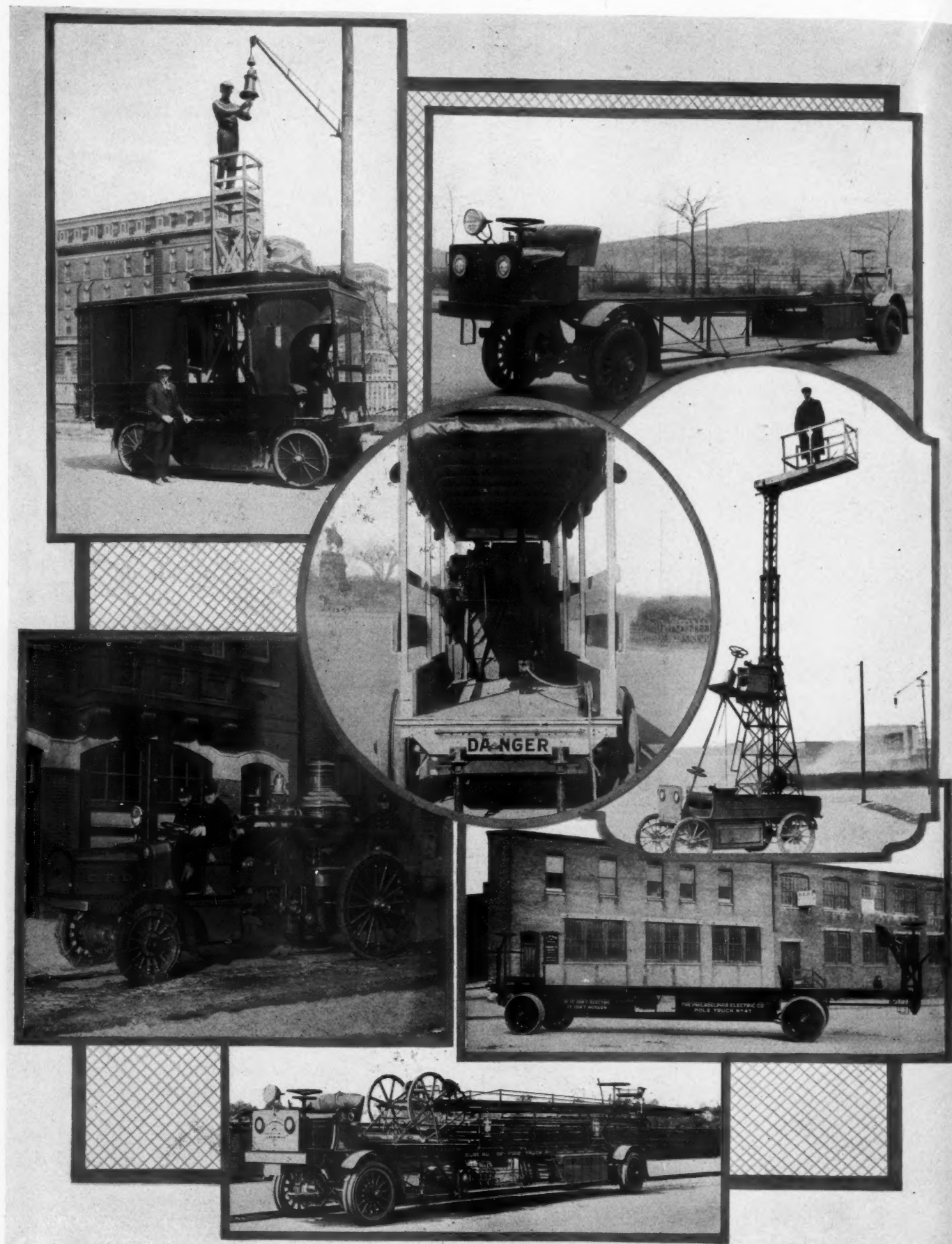
Five-Ton Walker Electrics Carrying Glass Lined Milk Tanks

This is half of the fleet of eight electric trucks used by the Rieck-McJunkin Dairy Company of Pittsburgh



Some Special Body Designs Mounted on the Electric Truck Chassis

The advertising possibilities which the body affords have here been recognized. The Moody & Waters Co. truck, is one of a fleet of nine, owned by this prominent Chicago pie-baking concern. The Lackawanna laundry job shows a special panel job designed by Fitz Gibbon & Crisp. The Garmack Dry Cleaning Co., uses this electric as a portable tailor shop. This vehicle is fitted with all the necessary apparatus for pressing clothes while the owner waits. The vehicle battery supplies the juice for the electric irons. The body with the drop center frame shows a convenient body for the delivery of milk on retail routes. This design gives the milk man easy access to all parts of the body. A door at the rear permits the empty milk boxes to be loaded into the rear and the full ones brought forward. The body at the lower left is designed to carry practically any size picture or painting. Strips on the inner sides of the body, about 3 in. apart, are set in flush with the upright but clearance is provided between them and the panel to allow for the passage of ropes so as to tie any size picture up at the sides. The rear door is designed to go up to a perfectly straight position as shown to allow for extra large picture crates to extend out on tail gate.



The Electric Truck in Municipal and Public Service Work

Many dealers have an idea that the electric truck is used mostly for the regular run of commercial hauling and that it is not adaptable for other service. These illustrations show the electric truck doing the unusual type of work. Trimming street lamps, repairing trolley wires, laying underground electric cables are all jobs in which the electric truck is performing economical service. Electric service corporations have been using electric trucks all over the country for years. Even fire apparatus is being operated by electric power. The electric truck is therefore applicable to all kinds of city service.

space, there is very little difference between the cost of installing electrics and keeping horses. Of course, many users will say that as they already have all these things, it costs them nothing extra. Almost invariably, however, when they go into the matter, they find that they can make very good use of the extra housing space, which is usually worth, at present day prices, two or three times what it cost them to build.

The same thing is true of gas trucks. Electric truck chassis cost no more than the chassis of gas trucks of equal quality. Battery expense is an operating item, and should be included in operating costs. If you add to the cost of the trucks, the garage space, gasoline tanks and piping, and machinery necessary to the upkeep of the gas trucks, the figures will not favor the gas truck as compared to the electric.

The Factor of Depreciation

Statistics show that the service life of horses in frequent stop or short haul city delivery, ranges from four to six years. It is customary to charge them off at twenty per cent annually. Some horse owners may say that they have horses that give service for a longer period than five years. It often happens that horses fall victims to disease or accident in a short time, and this counterbalances the long lived horse. Take it all in all, twenty per cent is a fair figure and should stand. Statistics show likewise that all gas cars average five years' life. The cheap light variety of gas truck in frequent stop service averages much less. Trucks of good quality that are properly maintained, may go over this figure, but all gas trucks put together, average five years. Business men usually depreciate them at twenty per cent to thirty-three per cent a year, depending upon the make.

Electric trucks can be safely depreciated at seven and a half to ten per cent per year, depending upon the character of the business. In other words, if an electric truck did not last ten years, its maker would be ashamed of it.

In fact, the real life of the electric is not known today. As Mr. Paul Karst, Superintendent, American Railway Express Co., Philadelphia, recently stated in a lecture: "Going into the matter of the life of the electric truck, I would like to call your attention to the fact that we have street electric trucks dating back twenty years, which trucks are rendering perfect satisfactory service today. The life of an electric truck is problematical. What it will be, we do not know as yet."

A Comparison of Costs

The electric truck is by far the cheapest, handiest and most reliable vehicle for frequent stop city service. The power of the electric truck is shut off at every delivery stop and in every traffic stop. There is no wear, tear or

waste going on, and no consumption of power excepting when the truck is in motion.

It gets away faster than the gas truck because there is no gear shifting. The driver jumps in, throws his lever a notch ahead, and the truck moves slowly. He throws it ahead a little more, and it moves faster, or he can go right through from neutral to high speed in one motion. This motion corresponds to the motion used in putting on the emergency brake of a gas truck. It is an even motion with four clicks, indicating different speeds, but the notches don't retard the lever. They can be easily passed over. That is why the electric truck gets away quickly.

Current, oil and battery expense for an electric, cost less than either gasoline and oil for a gas truck or feed and bedding for horses doing equivalent work. It should be remembered that good practice demands that thirteen to fifty per cent reserve horses be kept and counted in the expense of each horse route. On hard routes, as many as one hundred per cent reserves are sometimes carried.

Electric truck tires cost less than gasoline truck tires and only a fraction of the cost of horse shoes.

The electric requires less garage help to care for it than either gas trucks or horses. It is naturally clean. Charging is as easy as plugging in an electric fan. When the battery is fully charged, it cuts off automatically.

Records of upkeep cost always reveal startling figures in favor of the electric truck. Rotary motion is the chief factor in its mechanism. As anyone who is mechanically inclined can easily understand,

wear and tear can be minimized by the use of properly selected ball or roller bearings or bushings. Such parts can be easily replaced without ripping away anything to get at the point of wear.

Accident and liability insurance cost twenty-five per cent less for electrics than for gas trucks. If such insurance is carried on the electrics, it should be carried on horses and wagons, as statistics show that the latter cause just as many accidents. Theft insurance is unnecessary on an electric. A thief can only run an electric truck until the battery runs down. Electrics are in great demand in Mexico for this reason. In case of Revolution, bandits steal every gas truck they can lay their hands on. When they steal an electric it is easy to recover it. Electrics also lower the fire insurance rates on buildings, as, of course, they remove the hazard of storing hay or gasoline.

The Human Element—the Driver

So far as the human element is concerned, the electric brings a new factor into delivery, with regard to drivers. Unfortunately, some gas truck drivers follow that occupation because they like excitement. They enjoy speeding. They are reckless. Of course they are not an asset to their truck or to their employer. The typical electric truck driver is a quiet, careful man. He has more poise, stability and sense of responsibility. He does not have to be mechanically inclined. There is nothing simpler to operate than an electric. He can be selected for his reliability, honesty and selling ability.

Another favorable reaction of the electric truck on the driver is that its ease of operation keeps him even tempered because it decreases the strain of driving.

These characteristics indicate the similarities and differences in the handling of gas trucks and electrics.

After all, there are only two reasons why you should handle both.

One is because most businesses need both.

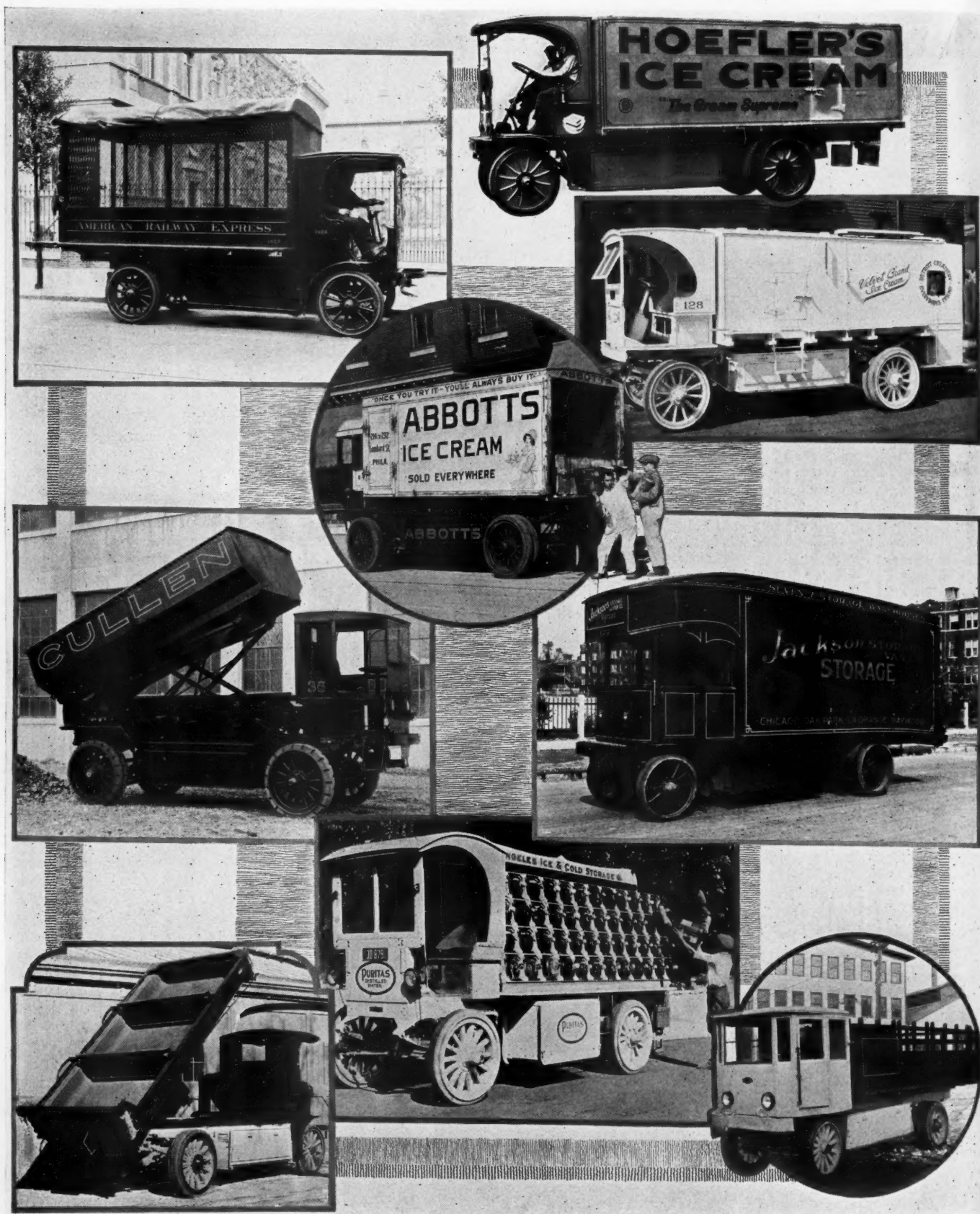
The other reason is that handling both will enable you to meet the complete transportation needs of these business men and therefore increase your profits with very little increase in your overhead.

The fact that the gas truck manufacturers are beginning to make electric trucks is merely indicative of the undertow—the interest of business men in the electric truck for the short-haul, frequent-stop routes. Because they recognize that they need both gas trucks and electric trucks, the manufacturers are getting interested and are interesting the dealers, and that is the only reason why you should be interested, plus the fact that your interests leads to profit. When you sell electrics and gas trucks you are not just a truck dealer—you are selling transportation.



This Body Saves Time for the Operator

This is a combination cab arrangement for winter and summer use. The door folds in the center. The bumper also acts as a step. Side curtains can be pulled down quickly when complete enclosure is desired. By stepping in and out of the body from the front much time is saved for the driver.



The Electric Truck in Heavy Duty Service

Three different types of ice cream delivery bodies are shown on this page. This business requires a heavy duty body which must be exceptionally well built and properly lined to protect the chassis from salt water drippings. Quite a bit of experimental work is going on at present to fit such bodies with refrigeration plants. At the present time approximately half of the body space is taken up by ice which must be carried to keep the contents of the body at freezing point. The Jackson Storage Van represents probably the finest body in Chicago. The sign in front above the windshield is electrically lighted. This advertising is worth three thousand dollars a year. This item alone is enough to pay for the truck in three years. The water wagon shows a novel body for carrying 5 gallon bottles of distilled water. This is one of a fleet operated by the Los Angeles Ice & Coal Storage Co. The dump bodies shown are used by prominent coal companies in New York and Philadelphia, respectively. The circle at the lower right shows a 5-ton electric with combination stake and side-board body with completely enclosed driver's quarters.

Here's a Way to Increase Sales and Profits

Are You Missing This Profitable Business on Short Hauls?

DO you find some of your customers persist in sticking to horse and wagon for short-haul, frequent-stop routes? The table in the center of the page shows a remedy for this situation.

Take Corby Baking Company for example. They have 95 gas trucks and 106 electrics. The electrics did not, for the most part, replace gas trucks. They replaced horses and wagons, which were sold off as fast as the electrics went into service.

Or take National Laundry with 9 horses and wagons, gas trucks and 4 electrics. They are in the same stage of motorization as Corby was in 1921-1922. Mr. Kashman, president of the company, has stated that as fast as electric trucks now on order are delivered, their horses will be discarded until their delivery is completely motorized. This will be done during the current year. **Not a single gas truck will be replaced by an electric—only horses and wagons.**

Or O. H. Geyer & Co. and International Dairy Co. are two completely motorized dairies. The electric truck made it possible. Gas trucks would cost too much to operate for the short trips with 200 or more stops which constitute the average dairy route.

The refusal to replace horses and wagons with gas trucks on such routes is not due to meanness or over conservation. The business man simply says horses are cheaper than gas trucks on short routes.

Take a delivery route from ten to fifteen miles long with from 100 to 200 stops. Running time on such routes averages about 2 hours as against 6 hours' standing time. The gas truck's engine uses up gas the entire eight hours. Stopping and starting wears out tires and engine more than eight hours steady running. The expense is heavy. The only possible advantage is slightly higher speed.

Even this advantage can't be counted as sure; in the first place it isn't possible to gain much time by

speed when the entire running time is only 2 hours. In the second place the gas truck's speed only averages about 7 to 8 miles an hour on such routes, due to the fact that there is seldom a long enough distance between stops to gather real headway.

The actual running time made by good gas trucks in good condition is 9.3 miles per hour with speed controlled at 25 miles per hour on 4 routes, averaging 22.5 miles in length and 90 stops. On the typical short delivery route their speed would be considerably slower. On such routes gas trucks can only save 20 to 40 minutes over the horse. Shifting gears 300 or 400 times daily imposes a heavy burden on the driver's strength and energy. This burden by slowing him up physically and making the time spent off the truck longer, neutralizes any slight time advantage he gets from speed.

The electric truck with its admitted cheapness of operation is the natural rival to "Dobbin" on the short-haul or frequent-stop route. It beats him on cheapness and ease of handling and is as fast on frequent-stop routes as a gas truck.

That it is Dobbin's master is shown by the fact that the concerns in the table on this page employ only 151 horses and wagons as against 1,474 trucks. The proportion of horses is only 9 per cent, whereas in concerns not using electric trucks, horses generally average 30 per cent to 50 per cent as compared to gas trucks.

The handling of electric trucks by a dealer

does not hamper his gas truck sale in any way. The two types of equipment are mutually supplementary; neither will furnish complete transportation service without the other.

Handling both gas trucks and electrics enables the dealer to "make two blades of grass grow where one grew before"—replacing his customer's horses and wagons on short haul or frequent stop routes.

Proportion of Horses, Gas Trucks and Electrics in Certain Fleets*

Name	Horse and Wagon	Gas Trucks	Electric Trucks	Percentage
Atlas Powder Co.	1	0	1	50
Blakely Laundry Co.	0	7	12	63
Bowe-Perry Pie Co.	5	3	12	60
The Breakers Hotel Co.	0	2	3	60
The Budd Dairy Co.	23	0	17	42.5
Cablish Bros.	0	1	4	80
Edward Callan	0	2	5	71.4
Campbell Baking Co.	0	4	6	60
Central Laundry Co.	3	5	15	65
Chalmette Laundry Co.	0	8	45	85
City Baking Co.	32	77	174	61.4
Consumers Baking Co.	0	52	93	64
Corby Baking Co.	0	95	106	52.7
Crawford Laundry Co.	4	3	7	50
Family Laundry	0	6	10	62.5
French Laundry	4	6	5	33.3
O. H. Geyer & Co.	0	0	5	100
Greissel Bread Co.	2	8	8	44.4
Jersey Bake Shops	0	2	23	92
Hydrox Co.	0	16	43	73
Ideal Laundry	4	6	10	50
Imperial Laundry Co.	0	2	33	94
International Dairy Co.	0	0	30	100
Kean Bros.	1	2	3	50
King's Model Laundry	7	3	14	58
Kolb's Bread Bakery	0	10	31	75.6
Louttit's Hand Laundry	22	13	24	40.7
Mills Baking Co.	0	33	87	72.4
Model Steam Laundry	0	3	6	66.6
Monteleone Laundry	0	4	7	63.6
Nafziger Baking Co.	0	4	9	69.0
National Laundry	9	4	4	23.5
Perfection Biscuit Co.	0	1	6	86
Pilgrim Steam Laundry Co.	0	4	41	91
Sanitary Steam Laundry	0	4	5	55.5
Troy Pearl Laundry	0	9	11	55
United Laundries	18	20	44	53.6
Van Thun Bros.	0	0	4	100
Harry Webb Co., Ltd.	5	0	39	88.6
American Bakery	11	14	39	61
Total	151	433	1041	

*Courtesy Ward Motor Vehicle Co.

Stage All Set for the New York Electric Truck Show

The Vocational Selling Idea Will be Emphasized by Designating Certain Days for Certain Industries. This Show Will Afford a Wonderful Opportunity for Dealers to Study the Electric Truck and Its Proper Application

NEW YORK City's Annual Electric Truck Show will be held again this year in the showrooms of the New York Edison Company, Irving Place and 15th St., April 19th to 25th. The plans provide for what will be virtually an Electric Truck Week, introduced by an Electric Truck Parade down Fifth Avenue on Saturday, April 19th, with each day designated to show the application of the electric truck in a specialized industry and to include further an Electric Truck Luncheon under the auspices of the New York Electrical League on April 23d.

Special invitations have been issued to users of transportation in the metropolitan district, asking that they attend the show on the days set aside for their particular industry. In this connection special charts are being prepared "in the language" of laundry users, bakery users, etc.

The following schedule has been decided upon:

April 19, Warehouse Day
April 21, Department Stores Day
April 22, Laundry Day
April 23, Public Service Day
April 24, Bakery Day
April 25, Ice Cream and Dairy Day
April 26, Provision Dealers' Day

Supplementing general information regarding the cost of deliveries, the logical application of electric trucks on short-haul frequent-stop routes, admitting the field of the gas truck for the longer routes, special preparations have been made to introduce charts and information of a particular nature on each of the specialized days. The baker's dollar will be divided showing the percentage of income paid out for deliveries, as will the laundry dollar, ice cream dollar, etc., on the days devoted to those industries.

Electric Truck Week will be formally opened with an Electric Truck Parade down Fifth Avenue on Saturday, April 19th. Many special features have been planned for this demonstration to impress the public with the importance of the electric truck as a delivery unit in our great national transportation system. Approximately 500 electric trucks will

PARTIAL LIST OF EXHIBITORS AT NEW YORK ELECTRIC SHOW

Allen-Bradley Co.
A. and J. N. Anderson Co.
Autocar Co.
Baker, R. & L.
Commercial Truck Co.
Cutler Hammer Manufacturing Co.
Edison Storage Battery Co.
Electric Storage Battery Co.
General Electric Co.
General Lead Batteries Co.
Gould Storage Battery Co.
K W Battery Co., Inc.
Lansden Company, Inc.
Metropolitan Battery Service Co., Inc.
O. B. Electric Vehicle Co.
Philadelphia Storage Battery Co.
Sangamo Electric Co.
Otto Sarvas
Walker Vehicle Co.
Walter Motor Truck Co.
Ward Motor Vehicle Co.
Westinghouse Electric & Manufacturing Co.
Yale & Towne Mfg. Co.

be in line, some of which have been in continuous daily operation for 25 years.

Charles R. Skinner, Jr., of the New York Edison Co., has communicated with every electric truck user in this territory to find out where the "veterans" are, meaning by "veterans" electric trucks that are ten years old or older. The

first division of the parade will be the veteran's section. It is hoped to have the parade led by a veteran of veterans—an electric truck that is more than 20 years old.

Following the veteran division will come the various industry divisions, grouping all of the laundries together, all of the bakeries together, all of the express trucks together, all Central Station trucks together, all of the department store trucks together, etc., and each exhibitor will be encouraged to have a display on one or more of his trucks saying something about how many electrics he has and what they have accomplished.

Each day during the Show has been set aside for the emphasizing of a particular industry. On that day there will be displayed at the entrance to the show something of particular interest to that industry. For instance, if it is the milk industry, we will have signs referring to the electric in the dairy business.

Wednesday, April 23d, will be Public Service Day. On that day, the luncheon meeting of the New York Electrical League will be devoted to the electric truck as a transportation unit, and its importance in terms of a battery charging load to the central stations. Major E. C. Church, Transportation Engineer, N. Y. Port authority, will speak on "Freight Handling and Transportation."

The Society for Electrical Development and the Electric Truck Transportation Bureau of the N. E. L. A., are co-operating in this educational show which has been designed primarily to educate the public to the use of electricity in this phase of transportation and to emphasize the increased use of electric trucks on short haul frequent stop delivery routes.

Commercial Car Salesmen Find New Field in Desert

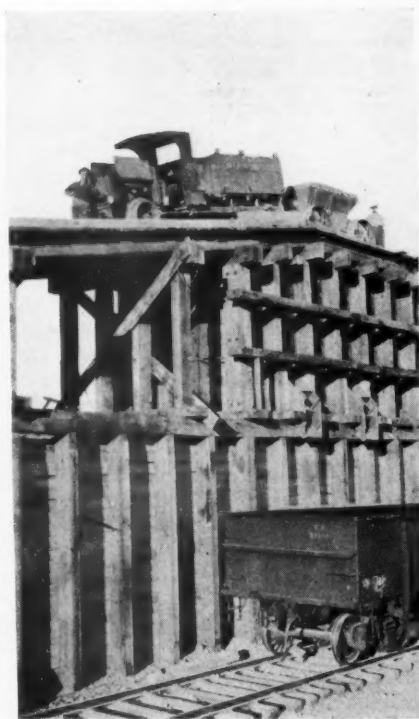
Adaptability of Truck Makes It the Ideal Transportation Unit for Flat, Sandy Country. Caterpillar Tractor Can be Used to Negotiate the Hills

By H. H. DUNN

THE American desert, once dreaded by all motorists, is proving to be one of the best fields for the sale of motor trucks and tractors yet opened outside the large cities. Virtually all the hauling in the desert sections of seven western states is being done by trucks where there are roads or where the country is level, and by caterpillar tractors in the hills and mountains, or in the valleys where deep sand or wide and changing creek beds make difficult the use of the motor truck.

One California truck salesman sold twelve trucks and nine tractors on the Colorado desert in 1923, and all his selling was done in January, February, March, November and December, the remaining seven months being so hot that he could not safely change from the coast to the desert. Another salesman, in January, 1924, sold four caterpillar tractors to one mining company on the Nevada section of the desert, to which he took a week-end vacation trip to look at a hole in the ground in which he had bought stock. His commissions on the tractors paid him more than three times what he had paid for the stock in the "mine."

The old six, eight, ten and twenty mule teams which once did virtually all the hauling on the desert have disappeared, the last one going out of existence at Johannesburg, California, in December, 1923. The motor truck and tractor have put them completely out of business. Greater speed, lower cost of operation, and much greater hauling power are the factors which have made the truck and the



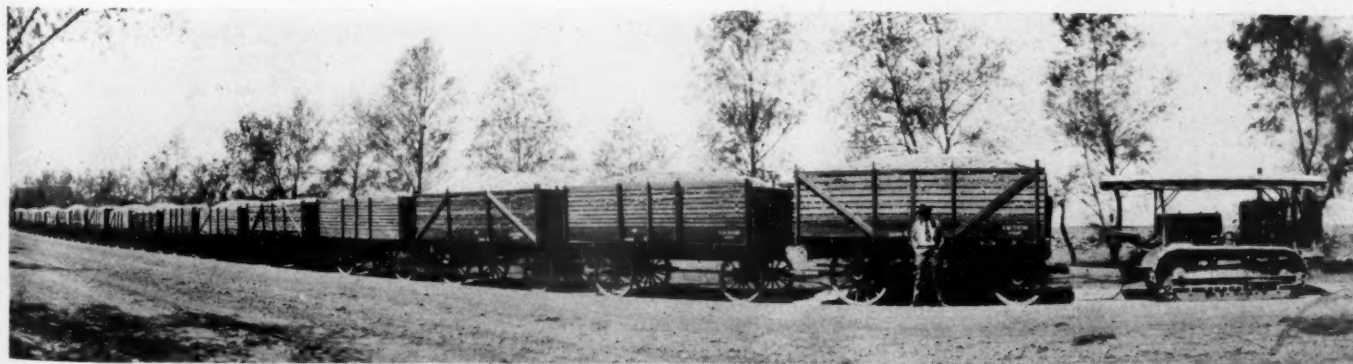
Dumping Ore From Truck and Trailers at a Railroad Siding on the Desert, After Hauling the Rock Twenty Miles From the Mine.

tractor supreme on the desert. Though, hitherto, owners of mines and other properties on the desert have had to go to San Francisco or Los Angeles when

they wanted a truck or a tractor, within the past year the commercial car salesmen have invaded the desert, and two, from San Francisco, are devoting all their time this spring and fall to that part of the Colorado desert which lies within California.

At Calexico, an American company interested in producing cotton just across the line in Lower California, has found that one caterpillar tractor handles daily between field and gin as much cotton as 144 mules handled before the tractor was introduced. Two men handle this tractor and 18 trailers, each carrying 3,000 pounds of cotton, and making four trips a day between field and gin. Thus, 72 trailers are hauled in a day. To haul this number by mules, four mules pulling two trailers and making two trips a day, required 144 mules. There were two men to each mule team, so 72 men were employed. Today, one tractor and two men do all the work of 72 men and 144 mules, at a cost about 40 per cent less.

Up to about a year ago, all the borax handled out of the desert, and virtually all the building materials, machinery and food supplies taken in were hauled in huge wagons, two to a train, pulled by twenty mules, a large water-tank-wagon being hauled in addition. Today, one motor truck, with caterpillar equipment on the rear wheels, handles four such wagons, each wagon holding more than the original mule wagon. The truck makes the trip of the 20-mule team in less than one-half the time the mules required. Two men were employed with the 20-mule team,



Caterpillar Tractor and Eighteen Trailer-Wagons

This unit replaced 72 men and 144 mules in hauling cotton from the field in Lower California to the gin in Calexico, Cal. Two men operate this outfit which makes four trips a day, at 40 per cent less cost



For Borax Mining

Type of road-laying tractor and trailer used in picking up borax at the mine dump and hauling it to a railroad on the desert. This tractor requires no road and can take the shortest line to its objective.

and two are employed with the tractor, so there is no saving there, but the reduced cost of operation and the greater quantity of material hauled, combined to save about 45 per cent on these longer hauls. Borax is one of the principal productions of the American desert, coming from both the Nevada and California sections, and new deposits of it which could not be worked before owing to lack of transportation, have been opened by trucks and tractors laying their own roads, to such an extent that the cost of production has been reduced some 20 per cent.

While the caterpillar tractor, and the truck equipped with caterpillar attachments on the rear wheels, are principally favored for desert use, the ordinary 10-ton truck, without special equipment is today the largest factor in building roads into all parts of the desert. Death Valley has yielded to this development, and this year it will be possible to drive a truck or passenger car into the muddy moun-

A Track-Laying Truck

New motor trucks of peculiar design which have been installed, hauling freight to the desert mines and ore out of them. Note that this is the kind of truck which lays its own track for the hind wheels and that the trailers have very wide wheels, built to work through sand.



tains of Nevada, the most barren and roughest part of the desert. Indeed, for the next decade, the American and Colorado deserts should prove most active fields for the truck and tractor salesman who is not afraid of long trips, who knows his machine and who can survive the discomforts of desert travel.

Truck and tractor dealers who have

opened this field declare the months for sales in the desert are January and February in the spring, and November and December in the fall, with some business done in March, though the heat in the desert is too great for most of the remainder of the year to transact business or to travel in safety. Men inured to the deserts work there all year 'round, but the business of taking trucks or tractors on demonstration tours in the other seven or eight months is not only troublesome but actually dangerous.

These dealers have found that the best way to make such sales is to take the commercial cars and tractors to the pros-

pects on the desert, rather than wait for the prospects to come to the dealers in the coast cities. A demonstration train of trucks of several sizes and of tractors of several kinds, to tour all parts of the desert in which there is any mining or ranching activity, is being planned for this winter by several dealers in San Francisco.

A White Model 50-A DeLuxe Bus

Exterior and Interior View of the Latest Achievement of the White Company, Cleveland, Ohio



This Bus Holds Twenty-Two Passengers

This new model, running between Cleveland and Akron, has the following general specifications: Overall length 18½ ft.; overall height from top of running-board, 66 in.; overall width, 84 in.; width of doors, 31 in. Easy access and exit for passengers and the inclusion of a number of excellent equipment features are some of the noteworthy details in the design of this bus.



Alabama Finds New Markets for Motor Truck Sales

Truck Transportation Being Used to Further Education in the South. Dealers Awakening to the Possibilities for Good Business in This New Market

By H. BETHEA

IN Alabama the rolling school, which is moved about on a truck, and the school bus used to transport the children of the rural districts to and from the community schools have opened up two undeveloped markets with great possibilities for the progressive truck salesman. Still another is beginning to show signs of life, the library on wheels which makes its way into the rural communities to bring books to those living away from the centers of civilization.

The possibilities for the development of these lines in Alabama are enormous, and the condition which prevails in this state is no less true in other Southern states, probably in all states where agriculture is the main industry and where the distances between settlements, schools and other centers of learning are great.

To narrow it down to Alabama, which is a state of sixty odd counties the business of opening the school truck field in this state alone is one which might well occupy a substantial sales force several years. The problem of transporting the school children to and from schools in the rural districts, if it was done thoroughly would take hundreds of trucks. In Jefferson County alone they are using twenty-five trucks to accomplish this work while in Montgomery County they are using thirty-five. Both counties need more. Other counties have one or two trucks and are thoroughly sold on the idea of truck transportation for school children, but so far they are not sold on the trucks.

Letters to county superintendents of education in the various states might prove a very productive investment of stamps, paper and time.

These letters might be followed up by letters from the salesmen in the various cities of the states and calls might follow the second letters. This market will best be reached by direct mail because it is so scattered—direct mail backed up by national advertising in well-known publications.

Still another angle of the usefulness of the truck in education is the farm school which is being used in Alabama. Both the Tuskegee Institute for negroes and the Alabama Polytechnic Institute at Auburn for white boys and girls are sending out these farm school trucks.

The Auburn trucks are teaching farming methods in various parts of the state and their work is efficient but the state is inadequately covered because the necessary equipment is lacking.

The truck which was donated to the Tuskegee Institute by negroes of the state is doing agricultural and extension work out of Tuskegee. It too is the first unit of a fleet which the institute hopes to have working some day in the rural sections of the state. When this ideal is realized the country negroes who must stay on the soil and not afford to go into established institutions will have a chance to improve their condition through new educational opportunities.

these channels but he opens up a great advertising field for himself as well. The farmer who is taking instruction from a farm school on wheels will naturally be impressed with the truck which is carrying the school and his needs in the line of trucks grow as his knowledge and proficiency in farming increase.

The farmer who sees his children hauled off every morning in the school truck naturally thinks, when his business begins to grow, that a truck like that



Now the Motor Truck Fits Into the Educational System of the South

Fourteen new school trucks which were delivered in Jefferson County at the beginning of the recent school term. With the addition of these new trucks the fleet owned by Jefferson County now numbers twenty-five.

The third and last field which has been opened up is the public library on wheels. The library truck has recently been started through the co-operation of the Birmingham Public Library and the county board of education of Jefferson County in Alabama. The first of these trucks is now running. Its work is to carry books to and from the public library to the various community centers in the county. About two dozen of these community centers are now being served but there are many others that might be served if there was sufficient equipment in the county to serve them.

So far this is the only library on wheels that is operating in Alabama but the possibilities for this development are enormous, just as they are in the field of children transportation and in the farm demonstration school which comes to the farmer's door.

The dealer not only sells trucks through

would be a good thing for him to have to haul his milk and produce to the market. He will inquire of the driver and look the dealer up next time he goes to town, as soon as he finds that he can afford a truck. If the dealer has been bombarding him with literature, as he doubtless has, he is still more impressed with the truck when he sees it draw up to his door and takes his children in.

The market is a steady one and one which will increase with time. It has not been developed to the extent that it might have been simply because there has been plenty of business to occupy the truck dealers who they have not realized its possibilities. In Alabama, however, the dealers are beginning to wake up. They are putting school officials and library officials on their mailing lists and they are keeping the mails full of literature. They are preparing the way for a development which is bound to come.

Ten Per Cent Selling, Ninety Per Cent Keeping at It—

Is Right Proportion for Truck Salesman, Says W. A. Casey, Sales Manager of White Motor Truck Sales, Detroit, Who Believes Zoning Plan the Only Method for Keeping in Close Touch With Prospects

By D. G. BAIRD



W. A. CASEY

ON April 1, 1923, a new distributor took over White Truck Sales in Detroit. It so happened, too, that the Packard Motor Company had discontinued the manufacture of trucks just about the same time and the new distributor took over the truck sales organization of the Packard-Detroit branch almost intact, including W. A. Casey, sales manager, and six experienced salesmen. There was plenty of business to be had in Detroit and this organization went out after it and got it.

They sold nearly four times as many trucks in 1923 as the former dealer did in 1922. One reason for this is that Mr. Casey believes in keeping everlastingly after business. There may be many so-called "secrets of success" in selling motor trucks, he says, but if so, they all resolve themselves into one formula—ten per cent selling ability and ninety per cent hustling for business.

Lining Up the Prospect

The first thing the White Motor Truck Sales Company did after taking over the Detroit distributorship was to make a thorough canvass of every business house and individual White owner in the territory and prepare a card record on each.

The territory was divided into zones, and a salesman was placed in charge of each zone, with instructions to work that territory as if he were the distributor or dealer himself and with the assurance that he would get the commission on every sale made to a prospect in his district, whether or not he himself secured the prospect or made the sale. In other words, there is no overlapping of salesmen's efforts and there is no such thing as "house business" with the White Motor Truck Sales. Prospects are not addicted to the habit of walking into a salesroom and asking someone there to sell them a truck, but if one should walk in and buy a White from this organization, the salesman in charge of the zone in which the customer is located would get the full commission on the sale.

Mr. Casey is very much in favor of the zoning plan as opposed to any other. "In order to get properly acquainted and keep in close touch with prospects," he declares, "it is necessary for the salesman to work the same territory regularly and

for a considerable length of time. We want and expect our men to know every owner in the territory and to know all there is to be known about that owner's trucks and trucking problems. It is of paramount importance that he be familiar with the equipment which the prospect already has, so he will know just about when the prospect is going to have to replace his old trucks with new ones. He should know as much as possible about the condition of the prospect's business, because if his business is increasing, he is likely to be in the market for more equipment. Then he should know the drivers, the shipping clerks, and any others who are likely to influence the prospect in his choice of a truck. All this takes considerable time and work and unless one goes at it systematically and keeps at it, he is not going to be prepared to call on his prospects at the proper time to get their orders.

"Perhaps the greatest fault of truck salesmen is their tendency to scatter their efforts. They go out in the morning without any pre-conceived plan and they accomplish little or nothing as a result. A salesman has one call in mind, for example. He makes that and perhaps fails to see his man, whereupon he has to decide where to go next. He thinks the situation over and decides to rush over on the other side of town to see another fellow who might possibly be about ready to buy. Then he rushes back to another part of town, and so it goes. After he has met with a few disappointments, he probably drops into a pool room or other loafing place and spends the rest of the day.

"I don't mean this to apply to our men, because our men prepare regular schedules and follow them, but this practice is common on the part of passenger car salesmen and truck salesmen in general. Have a definite schedule and keep going is more important than being a high-pressure salesman who works only when the spirit moves him. After all, success in selling motor trucks is about ten per cent selling ability and ninety per cent keeping at it.

"The next thing is to keep accurate records of one's calls and follow them up promptly. Our men turn in a prospect card on each call they make and I make

sure that they turn them in promptly by having them come to me before they go to the files. Call-backs are filed to come up at the proper time and the clerk hands the cards to the men when they are due, thus assuring them against overlooking a call that they should make. One can't trust his memory or a miscellaneous collection of notes on these things."

The White Motor Truck Sales uses the card and record system prepared by the factory. Any dealer can devise a simple system that will answer the purpose quite satisfactorily if followed. The prospect card provides spaces for name, address, telephone number, name of individual if a company, kind of equipment now in use, kind of truck interested in, competition, date called, results, date to call again, and other information of importance. The salesman's schedule provides spaces for his name, the date, and his activities by half-hours from 9 a. m. till 5 or 5:30, including a space for luncheon engagements. At the bottom are other spaces for evening calls. Opposite each call is a space for recording the kind of competition to be met there. Other spaces are for indicating that the sale has been made or that the salesman is to call back on a certain day. As Mr. Casey points out, though, the form itself is not so important; the main thing is to have a schedule of some kind and follow it.

Cards Aid New Salesman

The prospect cards serve another purpose besides reminding the salesman when to call back and keeping the sales manager posted on the developments in each case. Should a salesman leave and be succeeded in his territory by a new man, these cards would be turned over to the new man as they come up from day to day, thus affording him something definite to work on and preserving a record of what the former salesman had accomplished.

The sales manager should keep a record of each salesman's calls for each day, Mr. Casey believes. Selling trucks is of course more than a mere matter of making calls, but the one who makes the highest number of calls, on the average, is very likely to be the one who makes the most sales. Mr. Casey finds that his men average about eight calls a day.

(Continued on page 60)

Electric Drive Feature of New Gasoline-Electric Bus

A NEW gasoline-electric vehicle, combining the flexibility and economy of an electric with the higher speeds and greater radius of a gasoline vehicle, has proved so successful in its first 6000 miles of operation that it will soon be put on the market, is the announcement made by one of its inventors, Prof. Morton Arendt, Columbia University, New York City.

This vehicle is at present operating in motor bus service on the Ninety-sixth street line of the Department of Plants and Structures, New York City. Other models are being designed for light, medium and heavy truck duty and it is planned to manufacture taxicabs, and gasoline electric rail cars in the future.

The gasoline-electric drive eliminates the clutch and gear-shift, which is the distinguishing feature of this vehicle. In this system a 20-hp. gasoline engine drives an electric generator, which supplies the current to two electric motors, worm-gearred to the rear wheels. A 42 cell battery acts as a power reservoir for use in quick starting and hill climbing. This is large enough so that if the gasoline engine ran out of fuel the battery could drive the vehicle about 5 miles. Battery is charged from the generator when power demands are not heavy, as in average running conditions.

Advantages claimed for this vehicle over existing types are lower maintenance, lower fuel costs, and longer life.

On recent tests the vehicle averaged 7 to 9 miles per gallon of gasoline, and on the level developed 30 to 35 m. p. h. Four and a half hours were required to run from Philadelphia to New York. From a standing start, a speed of 15 m. p. h. can be reached in seven seconds.

Normally the engine runs at 1200 r. p. m., and automatically throttles down to 900 r. p. m. when the vehicle is standing still or coasting. It is a 4-cyl. Buda, model MU, with 3 $\frac{5}{8}$ -in. bore and 5 $\frac{1}{8}$ -in. stroke. The General Electric generator is rated at 100 volts, 120 amp. at 1200 r. p. m. The G. E. propulsion motors are

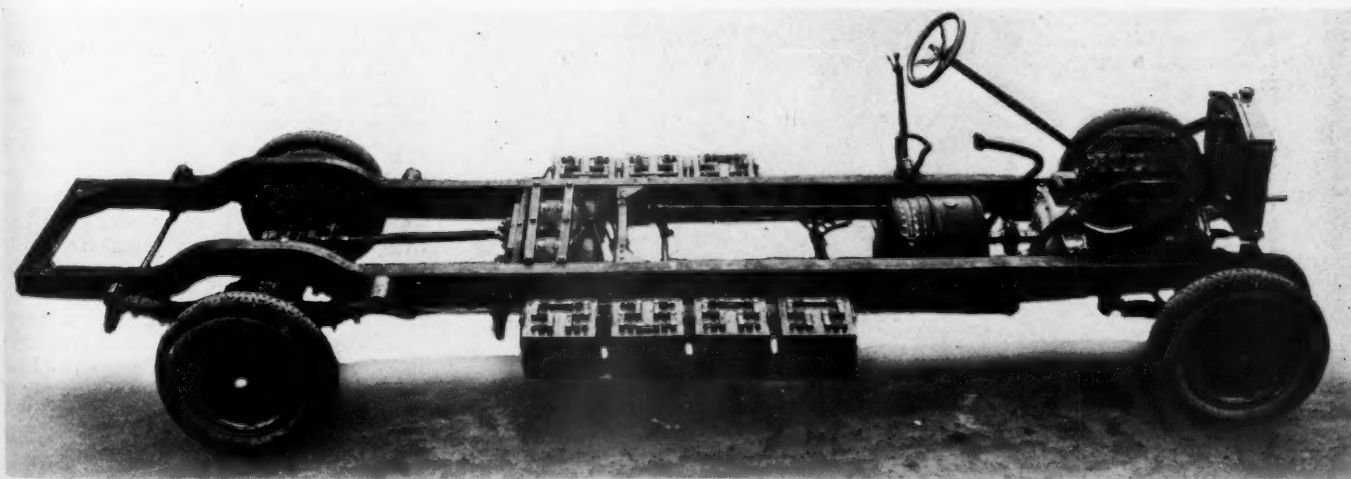
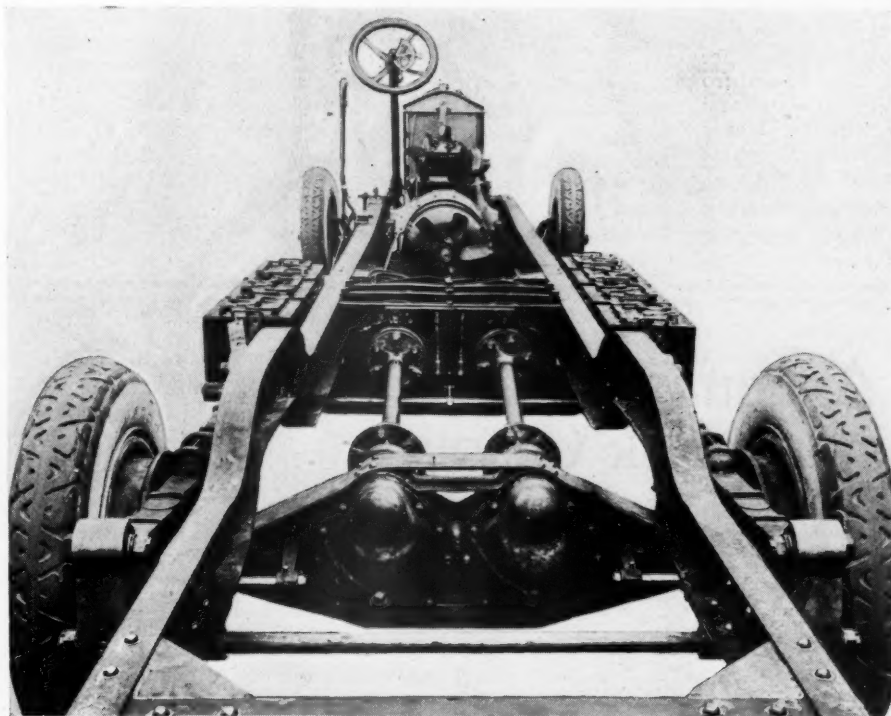
85 volts, 6 $\frac{1}{2}$ hp., as used on electric trucks. The 42-cell Westinghouse battery is the standard plate type used in automotive vehicles, built up in 6-cell units, each cell containing 11 plates.

As in all of the main units, standard parts are also used in the control mechanism, which is one of the features of this gasoline-electric system. This system permits the battery to charge or discharge as conditions warrant and keeps the load taken from engine and generator constant, regardless of battery voltage or vehicle demand.

This control system has been developed and patented by Prof. Arendt, who, in addition to his professorial duties, is consulting electrical engineer to the New

York City Department of Plants and Structures, and by W. Brown Morton, patent lawyer, New York City. The chassis and body as illustrated were assembled by the Atlas Truck Corp., York, Pa.

The 25-passenger bus weighs 10,300 lbs. without load, but this will be reduced 1000 lbs. by modifications in the chassis and body, it is expected. The weights of the truck chassis will, of course, vary with the carrying capacities. According to the driver of this vehicle the headway of a bus line could be materially increased because of the quick get-away.



Rear and Side View of the Arendt-Morton Gasoline-Electric Bus

A gasoline engine drives the electric generator at constant speed. Current from the generator drives the separate electric motors which are worm geared to the rear wheels. Battery acts as a power reservoir for quick start and hill climbing

New Automatic Brake and Engine Governor Prevents Speeding

THE new Molyneux Speed Governor is a new development which introduces an entirely new principle whereby the vehicle speed is kept below any predetermined maximum, even when coasting down hill.

The whole mechanism is contained within an enclosed and sealed case immediately in front of the differential. It consists essentially of a movable disk and a stationary fabric faced disk the former connected by parallel links to a suitable number of counterweights. The movable disk and counterweights are mounted on the rear end of the driving shaft and caused to rotate with the shaft by means of a squared or keyed portion of the shaft. The stationary disk is attached through sleeve to the differential housing and merely acts as a fixed number of the braking set. In no way is the normal function of the drive shaft changed, since the movable disk merely slides to and fro over the shaft accordingly as centrifugal force actuates the counterweights. Means are also provided for employing the same counterweights as an engine governor.

Both operations—braking and throttling—take effect when the vehicle speed ex-

ceeds the rate at which the mechanism is set to operate. Braking is accomplished through the pressure exerted by the movable disk when it comes in contact with the stationary disk, the force being provided by the expanding counterweights. At the same time, the throttle connection closes the butterfly valve and the engine

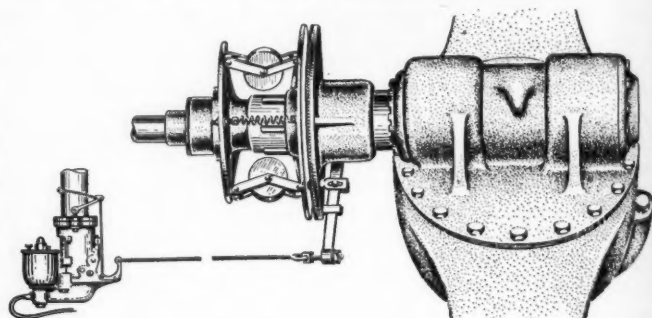
The Molyneux Automatic Speed Control.

Consisting of a positive friction brake operating in conjunction with a throttle control. Centrifugal force causes the movable disk, which is keyed to the drive shaft and revolves with it, to bear upon the stationary disk, thereby effecting a direct check upon the vehicle speed.

is prevented from racing. By utilizing the compounding effect of a drive shaft brake, very little pressure is required to produce the necessary braking action at the rear wheels. As soon as the vehicle speed is reduced by the automatic brake to a point below the critical speed, the

sagging counterweights pull the movable disk away from its opposing fabric-faced member, thereby discontinuing the braking effect and at the same time allowing the engine to take up its load.

Extending through an opening in the fixed disk is a lever arm provided with a roller point which bears against the movable disk. In one form of the speed governor this lateral motion is transmitted through suitable connections to the butterfly valve, but to further safeguard the speed governor from unauthorized tampering, it is planned to control the butterfly valve by electromagnetic means.



However, the control of engine speed is purely incidental and secondary to the positive braking function of the Molyneux Speed Governor, which accomplishes genuine control over the vehicle speed, which is an element of very great interest in the public mind at present.

Walter Announces Three-Ton Tractor Truck Chassis

THIS is a new model brought out by the Walter Motor Truck Co., Inc., Long Island City. It is intended for use with bad road conditions where great pulling power and maximum traction are essential requirements.

The power is distributed to all four-wheels through a patented automatic lock differential in order to provide 100% traction. The tires are 40 in. dia. both front and rear, 7 in. single being used in front and 10 in. single in the rear. These oversize tires reduce the unit ground

pressure enabling the unit to pull through soft ground.

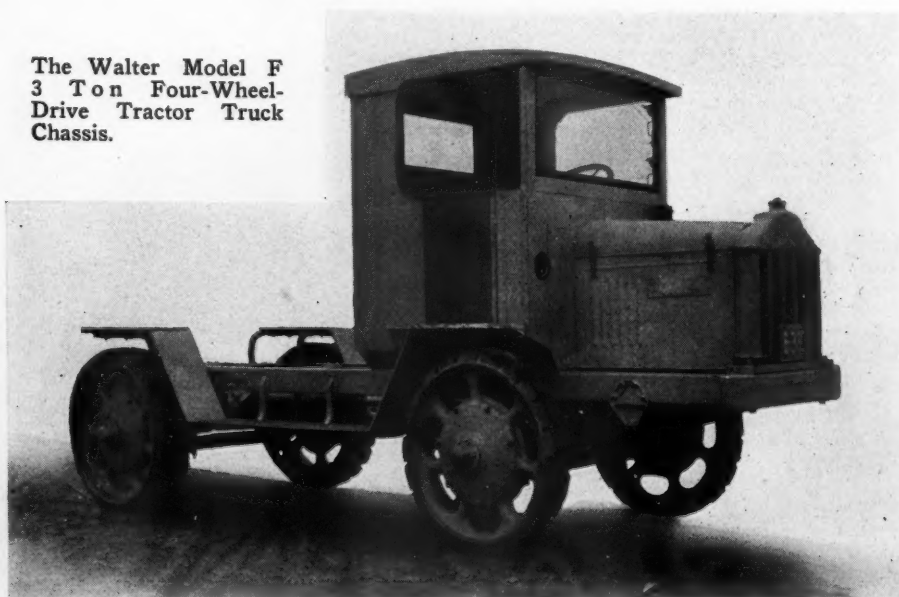
The clearance under the front and rear axle is 14 in.—the solid forged axles being the lowest part. The clearance under the center of the chassis is unusually high to provide better clearance for bad going.

This tractor truck is equipped with a Ricardo head engine 4 in. bore x 5¾ stroke, developing a high torque at comparatively low engine speeds. The clutch is of the special double disk construction. The Walter patented five-speed transmission is really of a tractor type as the gears and bearings are designed with at least double the usual factor of speed in order to permit continuous operation in the lowest speeds. The overall gear reduction in high speed is 8½ to 1, while the low gear reduction is 85 to 1. The transmission provides a 10 to 1 ratio. The five speeds and one reverse are controlled entirely through a single gear shifting lever.

A feature of this job is the interchangeability of parts. For instance, the four wheels are interchangeable together with the wheel bearings, drive gears, universal shafts and joints. Differentials and bevel drive gears, shackles, bolts, springs, bushings, links, clips, etc., are all interchangeable front and rear. The design has been worked out to use a minimum number of different sizes bearings.

The steering gear is the Ross cam and lever type. Due to the special design of the steering knuckle, these trucks steer very easily in spite of the comparatively greater weight on the front wheels.

The Walter Model F
3 Ton Four-Wheel-
Drive Tractor Truck
Chassis.



Ditwiler Announces New Automatic Dump Body

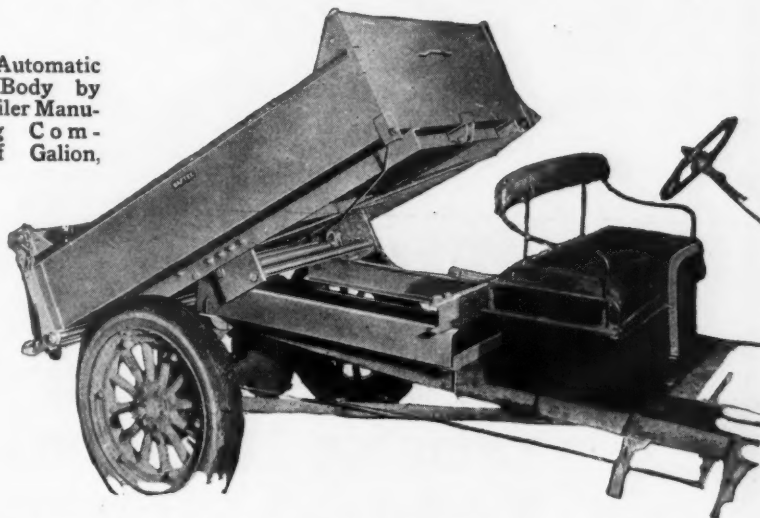
IN hauling crushed stone, gravel, building material of all kinds, also in the removal of earth from grades and excavations, an automatic dump speeds up the work materially, but the one drawback has been that this type of dump body has been very hard on the chassis, racking it severely in the dumping operation. The Saftee Automatic employs an entirely new principle which has changed this situation and owners can now equip a chassis with this dump body without fear of ruining the chassis.

It will dump any load in three seconds and the body is easily returned to locked position by the operator in two seconds.

The end gate opens automatically at the proper time for releasing and dumping the load. The body can be mounted close to the driver's seat without loss of space, giving proper distribution of weight. It will dump a 45° angle and give 18 in. clearance above the ground. The body is so mounted that it cannot slip forward, backwards or sideways on sub-frame. A locking device is provided which can easily be tightened so as to securely lock body to sub-frame for use as express body, if desired.

The Saftee Automatic Dump Body is made of 10 gage blue annealed sheets, electric welded throughout and heavily reinforced with steel angles. The body is securely locked to the chassis in both the horizontal and tipped positions so that it can never become loose or slip on the frame. Three steel shafts one and one half inches in diameter constitute the actuating mechanism, each one in turn taking the weight of the load and in this way checking the force of the body while being dumped. The sub-frame consists of five inch channels on which is mounted above the axle on either side a malleable

New Automatic Dump Body by the Ditwiler Manufacturing Company of Galion, Ohio.



bracket with elongated eye. The movement of the center steel shaft in this elongated eye rocks the body on the sub-frame. Steel castings are used in all vital parts of the body. The automatic body and dumping mechanism with sub-frame complete weighs 650 pounds. Its capacity level full is 27 cu. ft. With the use of 6 in. side boards the capacity is increased 15 cu. ft., giving the body a total capacity of 1½ yds.

How the Saftee Automatic Operates

The weight of the body and load is carried when locked on a channel cross member just back of the seat and on a steel shaft which is located 13 inches in front of the axle. This gives an ideal distribution of the load over the whole chassis. A second steel shaft floats through the elongated eye and is held at the top of the eye when the body is locked.

The body and load are dumped simply by pulling a lever in the center of the driver's seat which releases the catch that holds the body to the sub-frame. The floating shaft drops down into the eye and the body rocks on this. The body is so balanced that the weight dumps it automatically, and as the end gate releases at the same time the load is dumped clean. Before the body is tipped to the fullest angle possible, a third steel shaft behind the floating shaft strikes the sub-frame and takes the thrust of the load. This contact slackens the momentum of the load resulting in an easy dumping action that eliminates all racking of the chassis. The empty body returns to the horizontal position without effort and the tail gate relatches automatically.

The Saftee Automatic is attached to the chassis by the use of four U bolts only and no holes need to be drilled.

Activities of the Motor Truck Association of Philadelphia

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THE COMMERCIAL CAR JOURNAL OFFICIAL ORGAN

THE monthly meeting of the Motor Truck Association of Philadelphia was held on March 19th, in Griffith Hall, Crozer Bldg., as a membership drive, booster and smoker. After an interesting vaudeville entertainment, H. E. Shertz, Executive Secretary, explained the object of the Association under the new by-laws and rules, which he said were calculated to increase the truck owner membership of the Association so as to give them more influence in public legislative matters affecting the operation of motor trucks. He urged every member to try to secure at

least five new members before the next meeting.

An interesting moving picture demonstration was given by Major W. F. Baxter of the Ideal Equipment Company, of Chicago, on the operation of extra removable bodies for motor trucks in the quick handling of merchandise in shipping and railway terminals.

G. P. Callahan, Chairman of the Membership Committee, supplemented Mr. Shertz' remarks on the possibilities of the Association's influence if all motor truck owners, either of single units or fleets, would join the Association and co-operate with them in matters affecting their own

interests. He said the Association now has 450 members but could easily have 2,000 if the truck owners could only be shown the benefits to be derived from such an organization. A. R. Miller also told of what the Association had already accomplished in legislative matters protecting motor truck owners' interests, but stated that heretofore the Association having been largely composed of dealers, did not carry the weight with the State Legislature that it might have done had big business interests been connected with them. He said that the dealer and the owner should work together for the mutual benefit of everyone.

Business is geared up to motor truck speed, and the demand for good trucks is increasing daily. Federal Distributors are preparing for the greatest era of spring and summer truck sales ever experienced.

Federal has every capacity for any transportation need. Federal policies are always favorable to Distributors and Federal discounts are liberal.

Federal may have an opportunity for you—write.

THE FEDERAL MOTOR TRUCK COMPANY
Detroit, Michigan.



EDITORIALS



Sell Him the Complete Job

MANY dealers feel that after they have sold the truck buyer a chassis that their part of the transaction is finished. The fact of the matter is that they have only started. Furthermore they have tackled the proposition from the wrong end first. That dealer has sold the customer only half way.

Many motor truck installations have proved unprofitable in the past because the buyer was permitted to go into the market and buy any kind of a body that would either fit or not fit the work for which the chassis of the truck was intended. If the job proved successful it was really a matter of good luck and not business methods.

Incidentally the body many times provides the opportunity to interest a customer in a truck when any other form of approach would fail. This is simply because the most truck sales have been made on the merits of the chassis whereas the body was given no consideration at all. It was assumed that the purchaser would go elsewhere for the body anyway.

That condition has changed. The successful dealer is selling the customer everything he needs to make the truck handle the work properly, and that includes the body.

Some owners will pay a good price for a chassis but when they come to the body—they figure that any cheap body will do. After a time the body begins to loosen up and becomes shabby looking, sometimes even falls to pieces long before the chassis shows any reasonable wear. The chances are the truck owner will condemn the whole job, and the good will which the dealer enjoyed, who sold the chassis, is all lost.

That is one of the reasons why some of the popular makes of light trucks are being sold complete, body and all. That is why some body manufacturers have specialized in certain fields, or why others are building a line of bodies to fit certain makes of trucks. Of course there are some dealers who are selling bodies with the chassis but there ought to be more.

Many times the advertising feature which the body presents will help the dealer land an otherwise unwilling prospect. The proper painting and decoration of the body should all be part of the dealer's sales talk.

The Akron Bus Situation

STREET cars are again operating in Akron. Service has been resumed on a temporary agreement under a compromise providing for a five cent fare with one cent transfers, until December 4th, 1924. A permanent franchise will be submitted to the voters on behalf of the street car company at the general election November 4th, and it is possible that a motor bus franchise will also be submitted to the voters at the same time.

Because of the national interest taken in this affair varying reports have been circulated as to what happened in that city during the strike. The unfortunate part of it all is that it has left the impression in the minds of many that this was a fight between the electric railway industry and the bus interests. Such is not the case. The bus and street car interests have not been at war with each other, neither does the motor vehicle industry look for the complete motorization of a city's transportation service, especially under the circumstances attending the Akron experiment. The experiment was tried under the most unfavorable conditions as far as the buses were concerned—whether one views the situation as a supporter of complete motorization or with the well-considered viewpoint of the motor vehicle industry which believes in co-ordination of buses with street cars to improve public service.

Even though the buses had been able to cope with the situation they would not have lasted long on nickel fares. No bus line can make a profit on a nickel fare. The bus operator who believes he can is simply ignorant of the true facts.

Had the Akron situation been handled in a regular and sensible manner all the confusion would have been eliminated and much of the money spent unnecessarily by the electric traction lines during the tie-up would have purchased quite a few high-class motor buses.

Notwithstanding the great handicap under which the buses operated it proved that they can give that flexibility of service which cannot be secured by the rigid conditions of street car operations. The motor buses did not fail in Akron; the failure was that of a disorganized system of hurry, of nondescript equipment, of a disproportionate fare schedule.

News of the Trade in Brief

Locomotive Manufacturer Endorses the Motor Truck

"You are selling transportation just the same as I am, and it is the most vital thing in our lives today," President Samuel M. Vauclain, of the Baldwin Locomotive Works, Philadelphia, told the executives and salesmen of the International Motor Co. at its banquet at the Hotel Commodore in honor of Manager K. M. Blake's 25th year in the motor industry. "Draw a circle from any one of a dozen points in Eastern New Jersey, with the radius extending 25 or 50 miles, and while one third of the area will be water, the other two thirds will contain a very large proportion of the population of the East.

"It is so populous that motor trucks are regarded today as so essential no one questions their necessity as a factor in our lives. But they are not anywhere near as efficient as they are going to be in the future when door-to-door deliveries will mean taking things from New York in the evening that remain unsold and putting them on the shelves of Philadelphia merchants the next morning for disposal there and vice versa. We are going to get down to a basis of co-operation to utilize to their fullest capacity all these units in the cause of efficiency."

Matt C. Brush, an executive of a finance corporation, said that when conditions were straightened out in Europe it would mean that this country would have to buckle down to work in earnest to meet competition all over the world. All

thoughts of how it was going to be of great benefit to us should be discounted, he pointed out.

President R. E. Fulton and Treasurer A. F. Masury, of the International, told some interesting things of the early days of motoring, and Manager Blake, acting as toastmaster, asked the salesforce to beat the record of 1923, the biggest year they ever had when retail sales had passed the \$7,000,000 mark.

James T. Sullivan, of the Boston Globe, the last speaker, gave a brief talk on salesmanship, and also dwelt briefly on legislation as it affected the commercial vehicle. There were 100 present.

Automobile Industry Showed Largest Employment Gain

Out of 52 leading industries in the United States which make monthly reports on the number of employees and the amount of payroll, figures just completed by the U. S. Federal Employment Service show that the automobile industry in 1923 showed the largest gain.

During that year truck and automobile manufacturers increased the number of workers they employed by 18 per cent and their payroll totals by 29 per cent. The 1923 figures are compared with 1922.

The figures, of course, do not include 100 per cent data from either the automobile industry or any other industry, but in-so-far as the automotive industry is concerned cover slightly more than 90 per cent of the manufacturers.

Transportation Units Show Large Value Increase

Privately owned transportation and transmission enterprises, other than railroads, increased in 1912 from a value of \$9,572,855,000 to 13,607,570,000 in 1922 or 42.1 per cent., the U. S. Department of Commerce announced here this week in its preliminary estimate of the value, December 31, 1922, of the principle forms of wealth in the United States. No comparison is possible, it is announced, for the value of motor vehicles, which, which was estimated in 1922 at \$4,567,407,000, because no separate estimate was made in 1912. All classes of property increased in value from 1912 to 1922 except live stock, which decreased slightly.

The total of all principle forms of wealth in 1922, according to the statistics, amounted to \$320,803,862,000 as compared with \$186,299,664,000 in 1912 an increase of 72.2 per cent. Per capita values increased from \$1,950 to \$2,918 or 49.6 per cent.

In making these estimates, the Department followed in general the methods employed in making the estimates for 1912, though it is believed that in some respects the work in 1922 has been more thorough. It should be borne in mind that the increases in money value are to a large extent due to the rise in prices which has taken place in recent years, and so far as that is the case they do not represent corresponding increases in the quantity of wealth.

CONVENTIONS

- Akron, Ohio, November 18 to 20, 1924**—1924 convention of the National Tire Dealers' Assn. Hosts, Akron Retail Tire & Accessory Dealers' Assn.
- Albuquerque, N. M., May 26 to 31, 1924**—U. S. Good Roads Exhibition to be held under the auspices of the U. S. Good Roads Assn. and National Bankhead Highway Assn. Display at Armory and meetings at Sunshine Theatre. Col. J. A. Rountree, Director-General, 4th and Gold Sts.
- Atlantic City, N. J., June 23 to 27, 1924**—27th annual convention of the American Society for Testing Materials to be held at Chalfonte-Haddon Hall. C. L. Warwick, Secretary-Treasurer.
- Boston, Mass., June 4 to 6, 1924**—Meeting of the National Foreign Trade Assn., in co-operation with the National Council of American Importers and Traders. O. K. Davis, Sec., 1 Hanover Sq., N. Y. City.
- Buffalo, N. Y., April 28 to 30, 1924**—8th annual meeting of the American Gear Manufacturers' Association to be held at the Lafayette Hotel. T. W. Owen, Sec., Cleveland, Ohio.
- Chicago, Ill., June 2 and 3, 1924**—Annual meeting of the National Motor Rebuilder and Rebuilders' Assn. Charles H. Hart, Sec., 3848 N. Clark St., Chicago.
- Cleveland, Ohio, November 18 to 19, 1924**—Joint service meeting with the National Automobile Chamber of Commerce.
- Detroit, Mich., May 19 to 21, 1924**—National Service Congress of the National Automobile Chamber of Commerce.
- Detroit, Mich., May 19 to 23, 1924**—National Service Convention and Maintenance Equipment Show to be held under the auspices of the National Automobile Chamber of Commerce, in the General Motors Bldg., Exhibition Hall. S. A. Miles, Mgr., Marlin-Rockwell Bldg., Madison Ave., New York City.

Coming Events

- Detroit, Mich., May 21 to 24, 1924**—First International Motor Transport Congress under the auspices of the National Automobile Chamber of Commerce.
- Detroit, Mich., June 3 and 4, 1924**—Mid-summer meeting of the Automobile Body Builders' Association.
- Detroit, Mich., October 21 to 24, 1924**—Production meeting of the National Automobile Chamber of Commerce.
- Detroit, Mich., January, 1925**—Annual meeting of the Society of Automotive Engineers.
- Louisville, Ky., May 8th and 9th, 1924**—2d annual convention of the Hardwood Manufacturers' Institute, Brown Hotel. J. M. Pritchard, Secretary-Manager.
- Louisville, Ky., September 29 to October 3, 1924**—13th annual Safety Congress of the National Safety Council. W. H. Cameron, managing director.
- St. Louis, Mo., June 1924, 1st Week**—Annual secretarial conference under the auspices of National Automobile Dealers' Assn. C. A. Vane, general manager, 320 N. Grand Ave. Place of meeting to be announced later.
- Spring Lake, N. J., June 24 to 27, 1924**—Summer meeting of the Society of Automotive Engineers. C. F. Clarkson, Mgr.
- Washington, D. C., June, 1924**—Pan-American Highway Congress of the Pan-American Highway Mission.
- Wilkes-Barre, Pa., October 17 to 18, 1924**—Annual convention of the Pennsylvania Automotive Assn. R. C. Duffus, Mgr., 302 Security Bldg., Harrisburg, Pa.

SHOWS

- Chicago, Ill., June 2 and 3, 1924**—1st annual show of the National Motor Rebuilders Assn. to be held at the Lexington Hotel under the auspices of the National Motor Rebuilders and Rebuilders' Assn. of U. S. and Canada. Proper mechanical fitting of rebuilt motors, etc. John J. Fuchs, Jr., 1047 Farnum St., Omaha, Neb.
- Detroit, Mich., May 19 to 23, 1924**—National Service Convention and Maintenance Equipment Show to be held under the auspices of the National Automobile Chamber of Commerce, in the General Motors Bldg., Exhibition Hall. S. A. Miles, Mgr., Marlin-Rockwell Bldg., Madison Ave., New York City.
- Goldsboro, N. C., April 21 to 26, 1924**—4th annual show of the Chamber of Commerce and local automobile dealers at Co-operative Tobacco Warehouse. Passenger cars, trucks, tractors, accessories and industrial exhibits. W. C. Denmark, Sec., Box 54 Chamber of Commerce Bldg.
- Green Bay, Wis., August 25 to 30, 1924**—4th annual show of the Automotive Division of the Green Bay Association of Commerce. Automotive Bldg., Northeastern Wisconsin Fair Grounds (300,000 sq. ft.). Passenger cars, trucks, accessories and sport and auto apparel. W. E. Kerwin, Mgr., Bellin Bldg.
- New York, N. Y., April 19 to 26, 1924**—Electric Truck Show under the auspices of The New York Edison Co., to be held in their building, 10,000 sq. ft. of space allotted. Electric trucks, accessories, batteries and charging equipment. C. R. Skinner, Jr., Mgr., 130 E. 15th St.
- Sacramento, Cal., August 30 to September 7, 1924**—70th annual California State Fair, under the auspices of the State Board of Agriculture. Tent 100 x 350. Passenger cars, trucks, tractors and accessories in other tents. C. W. Paine, Sec.

Electric Trucks Under Discussion at Big Boston Meeting

More than 300 men identified with the sale and operation of electric trucks were present at the annual dinner at Boston, March 26, in the Boston City Club of the New England Division of the Electric Light Association. Samuel Ferguson, president of the Hartford Electric Light Association, and a director of the Electric Transportation Company of that city, presided. He told what was being done in Connecticut in the way of utilizing electric trucks and predicted a bright future for them. He introduced as toastmaster Larue Vredenburg, of the Edison Electric Illuminating Co. of Boston.

Mr. Vredenburg called on E. S. Mansfield of the Boston Edison Co., as the first speaker. Mr. Mansfield gave an admirable talk on the manner in which electric trucks are taking their place in city traffic. Charles R. Skinner, Jr., of New York, who is an officer of the New York division of the Electric Light Association gave some remarkable statistics on big companies that have changed from horse-drawn and gasoline vehicles to electrics in recent months.

W. W. Kittredge, of Chicago, representing a big mercantile house there, told of the thousands of electric trucks in use in the West, particularly in Chicago, and why the number is growing larger, intimating that the close co-operation between the central charging stations and the users had much to do with it. He gave specific facts about the number of electrics used by such firms as Marshall Field, the Boston Store and others in Chicago as evidence of how the electric was regarded there. He said that with oil going up in price and the cost of electricity coming down the electric vehicle was in a fair way to dominate the field eventually.

M. E. Travers, manager of the White Cross Laundry, of Somerville, Mass., told how he bought an electric truck in 1915 with a capacity of 750 lbs. and it did so well that he afterwards added a two-ton electric. He said that he had frequently put the trucks to a test of long mileage and with overloads, yet they always did the work, and there was only one instance of a hold-up in deliveries. During the past winter the electric went through snowbanks, and up and down hills without ever losing a trip, he added.

N. E. Whittemore, transportation and publicity manager for the Ginter Company of Boston was the final speaker. He told of how he had made an exhaustive study of horse-drawn, electric and gasoline trucks for his company because they had to take care of bringing goods to warehouses, then sending it out to their 300 retail stores all over Eastern Massachusetts. He said they still used horses for the short haul for inbound goods. But for the city work between the warehouse and the stores, also to the warehouse from freight yards he used electric trucks. For long hauls the gasoline trucks were used. He stated that the use of horses in a city like Boston slowed down traffic and led to congestion as a result of which he said

horses were bound to go out of city work. All the electric trucks in his fleet had made good he said, for they cut down overhead through minimum of garage costs being put in the same stable with the horses, and not requiring expert operators and mechanics to care for them.

Record Electric Truck Sales in New York City for February

The month of February 1924 was one of the best for sales in the history of the industry. Orders for deliveries on 96 trucks were received from 27 companies and to date the sales in comparison with 1923 are approximately 40 per cent greater.

One of the first department stores in New York to use electric trucks, twelve or fifteen years ago, was Saks & Company but the trucks proved very unsatisfactory and after a short time were discarded. Saks & Company, however, have always been open-minded on the subject. Last month 12 3/4 ton electric trucks were purchased to replace Fords and other gas truck equipment. This is the last department store in the Metropolitan New York district to electrify its delivery service with the result that more than 500 electric trucks deliver the department store parcels.

Fourth Session of Electric Vehicle School Concluded

The final meeting of the fourth session of the Electric Vehicle School was held under the auspices of the United Electric Light & Power Co. on March 7th. Two interesting papers, one by K. B. Jones of the General Electric Co. on "Battery Charging Equipment" and one by Paul Karst of the American Railway Express Co. on "Electric Trucks," were presented.

"We have now arrived at the point," Mr. Karst said, "where many of the largest transportation companies, retail and wholesale stores, warehouses, milk dealers, ice cream dealers and coal dealers have analyzed their transportation problems and have found that the electric can, in the majority of cases, perform all the necessary work at a cost which leaves little to be desired." In his very illuminating paper many points were brought to the attention of the central station men as a means of impressing them with what they are losing if they do not use electric trucks where they are applicable and if they do not develop a battery charging load.

American Express Large Electric Truck User

The American Railway Express Co. is now operating 1426 electric trucks in 27 principal cities throughout the country. During the past year the transportation units in Oklahoma City, Okla., and San Antonio, Texas, were electrified to the extent of 50 electric trucks replacing approximately 200 horses. During 1923, 208 electric trucks were purchased by this company for use in various cities.

Electrics and Gas Trucks to be Sold Together

An interesting announcement was made at the National Electric Light Dinner to the electric truck users at Boston, March 26, when it was given out that a combination had been put through by Sid J. West, Eastern Representative of the Diamond T Truck Company of Chicago whereby these gasoline trucks would be handled in conjunction with the Walker Electrics in the same sales and service building. George H. Walker, who has managed the Walker truck interests for years here will continue at the head of that line, while C. P. Cary, formerly manager of the Garford and Packard truck departments in Boston, will act as distributor for the Diamond T line.

"It means going back to the early days when the General Vehicle Company had its line of electrics and also marketed the Mercedes trucks," says Mr. West. "In other words, as long as there are different fields for the two types and many firms need both gasoline and electrics it is feasible for one combination to sell the two lines. This is what the merger means."

Knowing What to Say and When to Say It

If an electric truck salesman in the United States were to emphasize limited mileage per charge of electrics the chances are that he would completely lose the prospect. On the other hand, it was pointed out by Horace Meese, Export Sales Manager, the Commercial Truck Company, at the luncheon of the Electric Motor Truck Club in New York on March 6th, that this was his greatest selling argument during his recent Mexican trip.

During the oft-occurring revolutions it has been found that the bandits grab every motor truck and passenger car in sight to fit in with their personal needs. In the case of the electric, when the battery has been completely discharged, a few quarts of gasoline will not do the trick. Hence the owner soon recovers his truck!

Bureau Disagrees With Headlight Dimming Idea

The theory that dimming of headlights by motorists when passing at night is a precaution against accidents has been disapproved by the U. S. Bureau of Standards, at least insofar as the Virginia State Legislature is concerned. The Legislature during the past several weeks have had under consideration the enactment of a bill requiring motorists to dim their lights when passing at night.

At the request of the Tidewater Automobile Association of that state, the Bureau of Standards experts with a committee from the Virginia senate made tests that satisfied the minds of the state salons that their proposed legislation was not beneficial. After the demonstration, the bureau was asked to appear before the General Laws and Rate Committee and recommend certain changes in the enforcement of the present law, which it is believed will produce better results.

Personal Items

E. H. Baughman has been appointed Southeastern representative of the Cincinnati Ball Crank Co., with headquarters at 816 Bona Allen Bldg., Atlanta, Ga. For ten years he was vice-president and general manager of the Ozburn-Abston & Co., of Atlanta, Ga. He was also president of the Southern Equipment Jobbers' Association for two terms.

J. A. Bell has been appointed Chicago branch manager of the commercial division of the American LaFrance Fire Engine Co., after having served in a similar capacity for the White Co., and as secretary and sales manager of the Chicago Motor Truck Co.

C. H. Booth and **F. M. Small**, formerly of the Republic Rubber Co. and **William B. Dunlap**, have been elected directors of the Lee Rubber & Tire Co.

Hal T. Boulden, formerly of the Selden Truck Corp., of Rochester, has affiliated himself with Wm. Elliott Graves, of Chicago, financial and bank advertising to help reorganize the business. He will be located in New York after the 15th of April. A report has been current that Mr. Boulden will become associated with Power Wagon, but this report has been denied.

Howard J. Burnish, for the past six years chief engineer of the gas engine plant of the Worthington Pump & Machinery Corp., at the Cudahy works, has been transferred to the compressor engineering department of the company at Cincinnati.

Zenas W. Carter, who has just completed the special bus promotion program of the White Motor Co., is now associated with the Erickson Co., New York advertising agency.

C. B. Clark has been appointed Pacific Coast district sales manager of the automotive division of the Columbus McKinnon Chain Co. He will have charge of the sale of Dreadnaught tire chains and accessories in the western part of the United States from Billings, Mont. and El Paso, Texas., through to the western coast, with headquarters in San Francisco. Mr. Clark formerly was Pacific Coast sales manager for the Champion Spark Plug Co., of Toledo.

William J. Clucas, district manager of the Lancaster Steel Products Corp., a General Motors subsidiary, has moved his office from Buffalo to the Leader Building, Cleveland.

Harvey C. Fruehauf has been elected president of the Trailer Manufacturers' Association of America. The meeting which elected him also voted to undertake a campaign for the amendment of the revenue law now in the Senate, whereby trailers would be exempt from the automobile excise tax.

M. H. Hoepfli, assistant chief of the automotive division of the Department of Commerce, has been made an honorary life member of the Argentina Touring Club. He will represent this Touring Club, it is said, at the World Motor Congress in May at Detroit.

E. B. Hough has resigned his connections with the Borg & Beck Company of Chicago, as their sales representative.

K. T. Keller, formerly manager of production of the Chevrolet Motor Company, has been announced as general manager of the General Motors of Canada, Ltd., with headquarters at Oshawa, Ontario, Canada.

R. J. Laciari has been appointed special sales assistant to P. K. Hexter, vice-president and director of sales of the Selden Truck Corp. of Rochester, N. Y. Mr. Laciari was formerly vice-president in charge of sales of the Vreeland Motor Co., of Newark, N. J., who manufactured the Ultimate truck.

A. D. Legg, branch manager of the New England States for the McQuay-Norris Mfg. Co., has resigned to accept the position of manager of sales of Korite Products, Inc., of Cambridge, Mass.

Glenn Muffy has resigned as sales manager of the Lees Bradner Co., of Cleveland, and will open his own office in Chicago for the purpose of doing consulting work in automotive and mechanical products. He will be succeeded at the Lees Bradner Co. by **Ira D. Grove**.

J. H. Newmark, for more than 15 years associated with Durant and General Motors interests, has established his own business under the name of J. H. Newmark, Inc., and will conduct a general advertising agency. He will continue to direct Durant sales promotion activities and to create and place the advertising of the Durant enterprises through his organization. He will be located at the Fisk Bldg., Broadway and 57th St., New York City.

W. D. Rockwell has been appointed director of sales of Parsons Mfg. Co. of Detroit, in which capacity he will proceed at once to the development of a national sales organization to market Parsons' products. Mr. Rockwell was for three years director of sales at the A. C. Spark Plug Co.

J. E. Simonds, formerly Chicago branch manager of the Duplex Engine Governor Co. of Brooklyn, has assumed charge of the Detroit branch, succeeding C. A. Anderson, resigned.

Howard L. Spohn, long prominently identified with advertising and automotive interests of national importance, has been elected vice-president of the Gardner Advertising Company. He will be the directing head of the office established in Chicago by the Gardner agency which operates offices in St. Louis and New York City as well.

Dan C. Swander has resigned as vice-president of the Eaton Axle and Spring Co. At the time of the purchase of the Perfection spring at which time Mr. Swander was general manager, he had made other plans for himself, but he was induced to remain with the new company until the reorganization was well under way.

Ellis W. Templin, who was formerly motor truck engineer of the Goodyear Tire & Rubber Co., development department, has joined the engineering department of the American Motor Body Co., 18th & Lehigh Ave., Philadelphia, Pa.

W. R. Vick, formerly manager of jobber sales for Perfection Heater and Mfg. Co. of Cleveland, has resigned his position and is now connected with H. L. Rackliff Company, automotive marketing counselors of Cleveland.

L. C. White has been announced as manager of the Indianapolis branch of the General Motors Truck Co. **A. W. Granger** has been elevated to the position of manager of the Chicago branch of the company, succeeding **E. J. Kilbourn**, who becomes district sales manager and who also will supervise the National Buyer department in the central district.

Fred C. Widkow, formerly eastern sales manager of J. H. Williams & Co., has been named eastern sales manager of the Keystone Forging Co., of Northumberland, Pa. He will be in full charge of the sales in both the special and standard forging departments for the eastern division and will make his headquarters at the plant.

Henry B. Woodbury, for twelve years representing the Falls Rubber Co. in Chicago, and later identified with the Vogue Tire Co., has been made general manager of the Vogue Tire Co., of New York, with headquarters at 126 W. Sixty-fourth St.

Trade Changes

The General Motors announced the opening of a direct factory branch at 4400 Superior Ave., Cleveland O. W. Crawshaw is district sales manager.

Adolph Saurer, Inc., of New York City, the American factory branch of the Saurer motor truck factories, has opened a sales and service branch in Chicago at 1115 West Washington Boulevard. John H. Romann has been placed in charge.

North East Service, Inc., is now occupying new quarters at 391 Lyell Ave., Rochester, N. Y. The North East Service Building is located directly adjacent to the North East factory and houses the Rochester Service branch, as well as the headquarters of the North East Service organization.

The **C. G. Spring & Bumper Co.** has transferred its headquarters from Kalamazoo to Detroit. At a meeting of stockholders, Arnold H. Goss and F. C. Finkenshaedt were added to the directorate. Earnings last year were announced at approximately \$306,000.

The **Eaton Axle & Spring Co.** has opened offices at room 4, 136 General Motors Bldg., Detroit, for the purpose of further facilitating its service to the automotive industry. Members of the staff at this office will be E. H. Janes, W. H. Wallace and D. R. Swinton.

The **Heim Grinder Co.**, Danbury, Conn., recently organized, has acquired the entire interest of the Ball & Roller Bearing Co., in the Helm centerless grinder and will continue the manufacture of the device at the present plant in Danbury. The officers of the company are: Henry N. Flynt, president; Clayton O. Smith, vice-president; Ferris M. Angevin, secretary and treasurer.

The **Grob Plating Co.**, Toledo, Ohio, recently incorporated, has purchased of the General Motors Corp., a part of the old Milburn Wagon Works plant and will expand its enamel and plating business immediately. William C. Grob is president and general manager of the Grob company. The Martin-Parry Co., which occupies a portion of the plant with its local assembly plant, will be permitted to remain until the Grob company needs more room.

The **Standard Automotive Equipment Co.**, 17th St. & Lehigh Ave., Philadelphia, who recently purchased from its former employers, the Standard Supply & Equipment Co., the large and well known automotive accessory lines, announces the opening of its business.

Johns-Manville, Inc., have elected officers as follows: T. F. Manville, chairman of board; H. E. Manville, president; L. R. Hoff, vice-president and general manager; W. R. Seigle, vice-president and general manager of factories and mines; J. E. Meek, vice-president; J. W. Perry, vice-president; J. S. Carroll, vice-president; A. C. Hoyt, secretary and treasurer; T. F. Manville, Jr., assistant secretary and treasurer. The Executive Committee is composed of: T. F. Manville, chairman; H. E. Manville, L. R. Hoff and W. R. Seigle.

The **McQuay-Norris Mfg. Co.**, St. Louis, has opened its new piston pin plant at Connersville, Ind., which will double its present output. More than \$60,000 is being spent on this building and its equipment. The present plant has been operating on a night and day basis for several weeks to increase production sufficiently to meet orders.

The **Gill Storage Battery Co.**, at San Bernardino, Cal., has just completed its new factory and has moved its offices and temporary plant into the new building where normal production is now under way.

Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

*Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line
Fan Belt Type: V—V-Shape, F—Flat, R—Round

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME									
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width							
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter ★	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Acce 40-1½	3	1 1/4	1 1/4	1 1/4	V	7	1 1/4	8	1 1/4	40 3/4	2	12	3 1/4	1 1/4	4	12 1/2	76 1/2	215 1/4	32	9 1/2				
Acce 60-3	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	15	1 1/4	42 3/4	2	13 1/2	3 1/2	1 1/4	4	13 1/2	84 1/2	241	34	10 1/2				
Acme 20L-1	3	1 1/4	1 1/4	1 1/4	V	7	1 1/4	11	1 1/4	34	1 1/4	12	3 1/4	1 1/4	4	12	108 1/2	63 1/2	200	34	10 1/2			
Acme 40-2	4	1 1/4	1 1/4	1 1/4	V	8	1 1/4	11	1 1/4	40	1 1/4	12	3 1/4	1 1/4	2	12	123 1/2	74 1/2	208	34	9 1/2			
Acme 40L-2	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	12 1/2	1 1/4	39 1/2	1 1/4	13	3 1/4	1 1/4	2	13	123 1/2	74 1/2	214 1/2	34	9 1/2			
Acme 60-2½	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	12 1/2	1 1/4	39 1/2	1 1/4	13	3 1/4	1 1/4	2	13	132 1/2	79 1/2	223 1/2	34	10			
Acme 60L-3	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	12 1/2	1 1/4	41 1/4	1 1/4	13	3 1/4	1 1/4	2	13	140 1/2	79 1/2	235 1/2	34	10			
Acme K (Bus)	3	1 1/4	1 1/4	1 1/4	V	12 1/4	1 1/4	12 3/4	1 1/4	34 1/4	1 1/4	15 1/2	3 3/4	1 1/4	2	15 1/2	127 1/2	312	243 1/2	41 1/2	6			
Acme 90-3½	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	12	1 1/4	41 1/4	1 1/4	15 1/2	3 3/4	1 1/4	2	15 1/2	150 1/4	95 1/4	243	36	10 1/2			
Acme 90L-4	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10	1 1/4	40 1/2	1 1/4	15 1/2	3 3/4	1 1/4	2	15 1/2	153 1/4	96 1/4	255	37	10 1/2			
Acme 125-5	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10	1 1/4	40 1/2	1 1/4	18	4	1 1/4	2	18	159 1/4	99 1/4	261	37	10 1/2			
American-LaFrance 2R	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	9	1 1/4	40 1/2	2	17	3 1/2	1 1/4	4	17	132	81	230 1/2	33	10			
American-LaFrance 2R	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	9	1 1/4	40 1/2	2	17	3 1/2	1 1/4	4	17	156	98	254 1/2	33	10			
American-LaFrance 2R	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	9	1 1/4	40 1/2	2	17	3 1/2	1 1/4	4	17	180	110	278 1/2	33	10			
American-LaFrance 2R	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	9	1 1/4	40 1/2	2	17	3 1/2	1 1/4	4	17	118 1/4	81	216 1/2	33	10			
American-LaFrance 3R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	144	90	243 1/2	35 1/2	9			
American-LaFrance 3R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	168	104	267 1/2	35 1/2	9			
American-LaFrance 3R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	192	114	291 1/2	35 1/2	9			
American-LaFrance 3R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	210	125	309 1/2	35 1/2	9			
American-LaFrance 3R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	99 1/2	71 1/2	199 1/2	35 1/2	9			
American-LaFrance 3R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	117 1/2	89 1/2	217 1/2	35 1/2	9			
American-LaFrance 5R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	144	90	243 1/2	36	10			
American-LaFrance 5R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	168	104	267 1/2	36	10			
American-LaFrance 5R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	192	114	291 1/2	36	10			
American-LaFrance 5R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	210	125	309 1/2	36	10			
American-LaFrance 5R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	102 1/2	71 1/2	202 1/2	36	10			
American-LaFrance 5R	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	9	1 1/4	42	2	21	4	1 1/4	4	21	123	90	222 1/2	36	10			
Armleder 21-1½	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	16 1/2	1 1/4	31 1/2	2	11 1/2	3 1/4	1 1/4	4	11 1/2	Opt	Opt	Opt	32	9 1/2			
Armleder 40B-1½	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	11 1/2	1 1/4	33 1/4	2	11 1/2	3 1/4	1 1/4	4	11 1/2	Opt	Opt	Opt	32	9 1/2			
Armleder 40C-1½	4	1 1/4	1 1/4	1 1/4	V	8 1/2	1 1/4	11 1/2	1 1/4	34	1 1/4	11 1/2	3 1/4	1 1/4	4	11 1/2	Opt	Opt	Opt	32	9 1/2			
Armleder KWB-3½	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	16 1/2	1 1/4	35 1/4	2	13	3 1/2	1 1/4	4	13	Opt	Opt	Opt	36	8 1/2			
Armleder KWC-3½	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	16 1/2	1 1/4	35 1/4	2	13	3 1/2	1 1/4	4	13	Opt	Opt	Opt	36	8 1/2			
Armleder HWB-2½	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	11 1/2	1 1/4	33 1/4	2	13	3 1/2	1 1/4	4	13	Opt	Opt	Opt	32	10			
Armleder HWC-2½	4	1 1/4	1 1/4	1 1/4	V	8 1/2	1 1/4	11 1/2	1 1/4	34	1 1/4	13	3 1/2	1 1/4	4	13	Opt	Opt	Opt	32	10			
Atterbury 20R-1½	4	1 1/4	1 1/4	1 1/4	V	8	1 1/4	14	1 1/4	38 1/4	1 1/4	11 1/2	3 1/4	1 1/4	4	11 1/2	122 1/2	72 1/2	211 1/4	34	9 1/2			
Atterbury 22C-2½	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	16	1 1/4	40 1/2	1 1/2	13 1/2	3 1/2	1 1/4	4	13 1/2	129 1/2	78 1/2	225	34	9 1/2			
Atterbury 22D-3½	4	1 1/4	1 1/4	1 1/4	V	10 1/2	1 1/4	16	1 1/4	40 1/2	1 1/2	15 1/2	3 1/2	1 1/4	4	15 1/2	142 1/2	93 1/2	242	37 1/2	8 1/2			
Atterbury 8E-5	4	1 1/4	1 1/4	1 1/4	V	14	2	20 1/2	2	40	2	17 1/2	4	1 1/4	4	17 1/2	157 1/2	80 1/2	263	37 1/2	10			
Autocar XXI-F-1½	4	1 1/4	1 1/4	1 1/4	V	5	1 1/4	9 1/2	1 1/4	49 1/2	2	16 1/4	2 1/2	1 1/4	4	16 1/4	91	67	156	34	9 1/2			
Autocar XXI-G-1½	4	1 1/4	1 1/4	1 1/4	V	5	1 1/4	9 1/2	1 1/4	49 1/2	2	16 1/4	2 1/2	1 1/4	4	16 1/4	114	90	179	34	9 1/2			
Autocar XXVI-M4-6	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	49 1/2	2	25 1/2	2 1/2	1 1/4	4	25 1/2	140	80 1/2	223	34	10			
Autocar XXVI-L4-6	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	49 1/2	2	25 1/2	2 1/2	1 1/4	4	25 1/2	176	116 1/2	259	34	10			
Autocar XXVII-H3	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	47 1/2	2	22 1/2	2	1 1/4	4	22 1/2	131 1/2	76	213	34	10 1/2			
Autocar XXVII-K3	3	1 1/4	1 1/4	1 1/4	V	3 1/2	1 1/4	3 1/2	1 1/4	47 1/2	2	22 1/2	2	1 1/4	4	22 1/2	155 1/2	100	237	34	10 1/2			
Available J-H-1½	4	1 1/4	1 1/4	1 1/4	V	11	1 1/4	14	1 1/4	40	2	48	2 1/2	1 1/4	2	48	120	80 1/2	201 1/2	32	9			
Available J-H2	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	14	1 1/4	40	2	48	2 1/2	1 1/4	2	48	120	84 1/2	212	32	9			
Available J-H-2½	4	1 1/4	1 1/4	1 1/4	V	11	1 1/4	14	1 1/4	40	2	13 1/2	3 1/2	1 1/4	4	13 1/2	144	85 1/2	226 1/2	32	9			
Available J-H3½	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	14	1 1/4	42	2	16	3 1/4	1 1/4	4	16	168	106 1/2	254 1/2	36	9			
Available J-H5	4	1 1/4	1 1/4	1 1/4	V	12	1 1/4	16	2	40	2	18	4	1 1/4	4	18	168	112 1/2	263 1/2	38	9			
Bessemer G-1	3	1 1/4	1 1/4	1 1/4	V	11 1/2	2 1/4	10	2 1/4	42	1 1/2	46	2 1/2	1 1/4	2	44	98 1/4	58 1/2	182 1/4	34	.....		
Bessemer																								

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING								FRAME						
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length		Width		
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Clinton 3.....	4	1 1/4	1 1/4	1 1/4	H	11	2	19	1 1/4	38 3/4	2 1/2	F	13 1/2	3 1/4	1/4	4	13 1/2	3 1/4	1/4	4	166	102	270 1/2	33 1/4	9 1/2
Clinton 4.....	4	1 1/4	1 1/4	1 1/4	H	11	2	19	1 1/4	38 3/4	2 1/2	F	15 1/2	3 1/4	1/4	4	15 1/2	3 1/4	1/4	4	163	105	270 1/2	38	8 1/2
Clinton 5.....	4	1 1/4	1 1/4	1 1/4	H	12	2	18	1 1/4	41	2 1/2	F	18	4	1/4	4	18	4	1/4	4	206 1/2	115	318	38	8
Clinton 5-7.....	4	1 1/4	1 1/4	1 1/4	H	12	2	18	1 1/4	41	2 1/2	F	18	4	1/4	4	18	4	1/4	4	130 1/2	91	242	38	10
Clydesdale 120B-5-6.....	3	1 1/4	1 1/4	1 1/4	V	9	2	18 1/2	1 1/4	46 1/2	2 1/2	F	16	4	1/4	4	16	4	1/4	4	131	.....	.....	38	.....
Clydesdale 90-3 1/2-4 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	2	14 1/2	1 1/4	42	2 1/2	F	16	3 1/4	1/4	4	16	3 1/4	1/4	4	143	.....	.....	38	.....
Clydesdale 65EX-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	9	2	14 1/2	1 1/4	42	2 1/2	F	13 1/2	3 1/4	1/4	4	13 1/2	3 1/4	1/4	4	132	.....	.....	33 1/4	.....
Clydesdale 65X-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	11	1 1/2	41	2 1/2	F	13 1/2	3 1/4	1/4	4	13 1/2	3 1/4	1/4	4	137	.....	.....	33 1/4	.....
Clydesdale 42-1 1/2-2.....	3	1 1/4	1 1/4	1 1/4	V	15	2	12	2	41	2 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	117	.....	.....	34	.....
Clydesdale 20-1 1/2-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	15	2	12	2	41	2 1/2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	95	.....	.....	34	.....
Clydesdale 18-1 1/2-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	15	2	12	2	41	2 1/2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	95	.....	.....	34	.....
Clydesdale 10-1 1/2-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	2	9	2	41	2 1/2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	109	.....	.....	34	.....
Columbia H-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	12	1 1/2	39	1 1/2	F	23	1 1/2	1/4	4	23	1 1/2	1/4	4	Opt	Opt	Opt	32 1/2	10
Columbia G-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	10	1 1/2	12	1 1/2	39	1 1/2	F	26	2	1/4	4	26	2	1/4	4	Opt	Opt	Opt	32 1/2	9
Columbia K-3.....	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	13	1 1/2	42	2	F	26	2	1/4	4	26	2	1/4	4	Opt	Opt	Opt	32 1/2	9
Commerce 9-1500.....	3	1 1/4	1 1/4	1 1/4	V	10	2	10	2	44	2 1/2	F	50	2 1/2	1/4	2	48 1/2	2 1/2	1/4	2	92 1/2	53 1/2	193	34	8
Commerce 14B-3000.....	4	1 1/4	1 1/4	1 1/4	V	10	2 1/2	9 1/2	1 1/2	39 1/2	1 1/2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	117	75	210	34	8 1/2
Commerce 25B-5000.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	1 1/2	15 1/2	1 1/2	42	1 1/2	F	13	3 1/4	1/4	4	13	3 1/4	1/4	4	132	84	228 1/2	34	12 1/2
Concord E-1.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	.....	.....	.....	32 1/4	.....
Concord G-2.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	.....	.....	.....	32 1/4	.....
Concord H-2.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	.....	.....	.....	32 1/4	.....
Concord J-2 1/2.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	.....	.....	.....	32 1/4	.....
Concord JI-3.....	4	1 1/4	1 1/4	1 1/4	H	7	1 1/2	9 1/2	1 1/2	33 1/2	2 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	.....	.....	.....	32 1/4	.....
Corbitt S-1 1/2.....	3	1 1/4	1 1/4	1 1/4	H	8	2	14	2	38	1 1/2	F	16 1/2	1 1/2	1/4	4	16 1/2	1 1/2	1/4	4	103	59	196	68 1/2	11 1/2
Corbitt E-1.....	3	1 1/4	1 1/4	1 1/4	H	8	2	12	2	41	1 1/2	F	16 1/2	1 1/2	1/4	4	16 1/2	1 1/2	1/4	4	104	62	198	68 1/2	11 1/2
Corbitt D-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	11	1 1/2	15	1 1/2	46	1 1/2	F	18	2	1/4	4	18	2	1/4	4	110	72	206	68 1/2	10
Corbitt C-2.....	3	1 1/4	1 1/4	1 1/4	V	13	1 1/2	15	1 1/2	46	1 1/2	F	22 1/2	2 1/2	1/4	4	22 1/2	2 1/2	1/4	4	132	78	230	69	10 1/2
Corbitt B-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	13	1 1/2	15	1 1/2	46	1 1/2	F	22 1/2	2 1/2	1/4	4	22 1/2	2 1/2	1/4	4	136	78	232	69	10 1/2
Corbitt R-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	14	1 1/2	8	1 1/2	46	1 1/2	F	22 1/2	2 1/2	1/4	4	22 1/2	2 1/2	1/4	4	153	92	254	69	10 1/2
Corbitt A-3 1/2-4.....	3	1 1/4	1 1/4	1 1/4	V	14	1 1/2	8	1 1/2	46	1 1/2	F	21	4	1/4	2	21	3	1/4	2	168	106	266	86 1/4	9
Corbitt AA-5.....	3	1 1/4	1 1/4	1 1/4	V	13	2	14	2	36	2	F	68 1/2	3	1/4	2	68 1/2	3	1/4	2	168	106	268	86 1/4	10
Day-Elder AN-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	6 1/2	1 1/2	7	1 1/2	34 1/2	1 1/2	F	10 1/2	3	1/4	4	10 1/2	3	1/4	4	106 1/2	62 1/2	191	35	.....
Day-Elder BN-2.....	3	1 1/4	1 1/4	1 1/4	V	4	1 1/2	12 1/2	1 1/2	41	1 1/2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	118 1/2	78 1/2	202 1/2	35	.....
Day-Elder DN-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	4	1 1/2	12 1/2	1 1/2	43	1 1/2	F	13 1/2	3 1/4	1/4	4	13 1/2	3 1/4	1/4	4	122 1/2	72 1/2	212 1/2	35	.....
Day-Elder CN-3.....	3	1 1/4	1 1/4	1 1/4	V	10 1/2	2	12	1 1/2	37	2	F	13 1/2	3 1/4	1/4	4	13 1/2	3 1/4	1/4	4	123 1/2	77 1/2	216	35	.....
Day-Elder FN-4.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	1 1/2	12	1 1/2	43	1 1/2	F	15 1/2	3 1/4	1/4	4	15 1/2	3 1/4	1/4	4	120 1/2	81 1/2	214 1/2	35	.....
Day-Elder EN-5-6.....	4	1 1/4	1 1/4	1 1/4	V	12 1/2	2	12	1 1/2	38	2	F	17 1/2	4	1/4	4	17 1/2	4	1/4	4	154	94	253	37	.....
Defiance G2-1 1/2.....	3	1 1/4	1 1/4	1 1/4	H	10	2	8	2	40	1 1/2	F	20	1 1/2	1/4	4	20	1 1/2	1/4	4	90	56	179 1/2	34	.....
Defiance GL2-1 1/2.....	3	1 1/4	1 1/4	1 1/4	H	10	2	8	2	40	1 1/2	F	20	1 1/2	1/4	4	20	1 1/2	1/4	4	119 1/2	76 1/2	203	34	.....
Defiance D-2-1 1/2.....	3	1 1/4	1 1/4	1 1/4	H	10	2	8	2	40	1 1/2	F	45	2 1/2	1/4	1	43	2 1/2	1/4	1	119 1/2	76 1/2	203	34	.....
Defiance E2-2.....	3	1 1/4	1 1/4	1 1/4	H	10	2	8	2	40	1 1/2	F	52	2 1/2	1/4	1	37	2 1/2	1/4	1	119 1/2	76 1/2	203	34	.....
Defiance FL-2-2.....	3	1 1/4	1 1/4	1 1/4	H	10	2	8	2	40	1 1/2	F	52	2 1/2	1/4	1	37	2 1/2	1/4	1	136 1/2	93 1/2	220	34	.....
Defiance H2-3.....	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/2	9	1 1/2	42 1/2	1 1/2	F	61	2 1/2	1/4	1	47	2 1/2	1/4	1	125 1/2	82 1/2	220	34	.....
Defiance HL-2-3.....	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/2	9	1 1/2	42 1/2	1 1/2	F	61	2 1/2	1/4	1	47	2 1/2	1/4	1	143 1/2	100 1/2	238	34	.....
Defiance H-3.....	3	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/2	9	1 1/2	42 1/2	1 1/2	F	61	2 1/2	1/4	1									

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME										
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width								
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Gary K-3½	4	1½	1½	1½	V	13	2	16½	1½	36	2	F	15½	3½	1½	4	15½	3½	1½	4	148	86	247	36½	10½
Gary M-5	4	1½	1½	1½	V	14	2	18	1½	33	2	F	18½	4	1½	4	18½	4	1½	4	168	99	275	39	10½
G.M.C. K-16	4	1½	1½	1½	V	10	1½	8	1½	33½	2	F	49	2½	1½	2	47	2½	1½	2	89	57	183½	34	8½
G.M.C. K-41	4	1½	1½	1½	V	10	1½	9	1½	35	2	V	13	3½	1½	4	13	3½	1½	4	Opt	Opt	Opt	33	9
G.M.C. K-71	4	1½	1½	1½	V	11	1½	9	1½	35½	2	V	15½	3½	1½	4	15½	3½	1½	4	Opt	Opt	Opt	38	10½
G.M.C. K-101	4	1½	1½	1½	V	11	1½	9	1½	35½	2	V	17½	4	1½	4	17½	4	1½	4	Opt	Opt	Opt	38	9½
Gotfredson 20-1	4	1½	1	1	V	9	1½	10½	1½	32	1½	F	11½	2½	1½	4	11½	2½	1½	4	88	56	182½	32	11½
Gotfredson 40-1½-2	4	1½	1	1	V	9	1½	13½	1½	32½	1½	F	12	3½	1½	4	12	3½	1½	4	120	69	214½	32	12
Gotfredson 50-2½	4	1½	1½	1½	V	11	2	16½	1½	41	1½	F	13½	3½	1½	4	13½	3½	1½	4	127	81	222	35	9½
Gotfredson 80-4	4	1½	1½	1½	V	14	2	18	1½	43	2	F	15½	3½	1½	4	15½	3½	1½	4	157	89	247	35	9½
Gotfredson 100-5	4	1½	1½	1½	V	14	2	19	1½	42½	2	F	18	4	1½	4	18	4	1½	4	155½	89½	261	38	9½
Graham Bros. BA	3	1½	1½	1½	V	9	1½	7½	1½	34½	1	F	50	2½	1½	2	20	2½	1½	4	96½	56½	202½	34	10½
Graham Bros. CA	3	1½	1½	1½	V	9	1½	7½	1½	34½	1	F	50	2½	1½	2	20	2½	1½	4	96½	56½	202½	34	10½
Graham Bros. DA	3	1½	1½	1½	V	9	1½	7½	1½	34½	1	F	50	2½	1½	2	20	2½	1½	4	96½	56½	202½	34	10½
Graham Bros. EA	3	1½	1½	1½	V	9	1½	7½	1½	34½	1	F	50	2½	1½	2	20	2½	1½	4	96½	56½	202½	34	10½
Graham Bros. FA	3	1½	1½	1½	V	9	1½	7½	1½	34½	1	F	50	2½	1½	2	20	2½	1½	4	96½	56½	202½	34	10½
Gramm-Pioneer 10 Speed-1	3	1½	1	1	V	12	2½	14½	2	29	1	F	48	2	1½	2	26	2	1½	2	132½	74	238	34	10½
Gramm-Pioneer 15-1½-2	3	1½	1	1	V	10½	2	6	2	39	1½	F	48	2	1½	2	45½	1½	1½	1	97	54	180	30½	
Gramm-Pioneer 65-1½-2	3	1½	1	1	V	10	2	6	2	39	1½	F	19½	1½	1½	4	19½	1½	1½	4	120	74	205½	32	
Gramm-Pioneer 125-2½	3	1½	1½	1½	V	4½	1½	12	1½	32	2	F	8	5	1½	4	45	2	1½	4	120	74	205½	32	
Gramm-Pioneer 30-3	3	1½	1½	1½	V	11	1½	9	1½	33½	2	F	22½	2½	1½	4	22½	2½	1½	4	126	77	214	32	
Gramm-Pioneer 75P-3½	3	1½	1½	1½	V	11	1½	9	1½	33½	2	F	22½	2½	1½	4	22½	2½	1½	4	129½	81½	226½	36	
Gramm-Pioneer 40-4	3	1½	1½	1½	V	11	1½	9	1½	33½	2	F	22½	2½	1½	4	22½	2½	1½	4	129½	81½	226½	36	
Gramm-Pioneer 50-5-6	3	1½	1½	1½	V	23	2	13	1½	40	2	F	32	2	1½	4	32	2	1½	4	144	87½	240	36	
Grass Premier 40A	3	1½	1	1	V	12	2½	14½	2	29	1	F	48	2	1½	2	26	2	1½	2	132½	74	238	34	10½
Grass Premier 60A1½	4	1½	1½	1½	V	14	2½	16	2	29	1	F	22½	1½	1½	2	48	2½	1½	2	98	70	192	31	
Grass Premier 70A2½	4	1½	1½	1½	V	14	2½	16	2	29	1	F	22½	1½	1½	2	48	2½	1½	2	108	66	204	31	
Grass Premier 90A3½	4	1½	1½	1½	V	11	1½	11	1½	40	1½	F	15½	3½	1½	4	15½	3½	1½	4	120	83	192	35	
Gray N-½	3	1½	1	1	H	9	1½	2½	1½	34½	1	F	27	1½	1½	2	19½	1½	1½	1			112½	35	9
Gray T-1	3	1½	1	1	H	9	1½	2½	1½	34½	1	F	20	1½	1½	2	19½	1½	1½	1			152½	32	9
G. W. W. Super	3	1½	1½	1½	V	8	1½	17½	1½	37½	1½	F	49	2½	1½	2	47	1½	1½	2	89	72	192	32	11½
Harvey WOA-2	4	1½	1½	2	V	11	2	14	1½	35½	2	F	45	2	1½	2	45	2	1½	2	139	87	242½	32	10
Harvey WFB-2½	4	1½	1½	2	V	11	2	14	1½	35½	2	F	50	2½	1½	2	50	2½	1½	2	139	87	242½	32	10
Harvey WHB-3½	4	1½	1½	2	V	12	2	14	1½	36½	2	F	20½	4	1½	4	20½	3	1½	4	151½	85½	258½	35	9
Harvey WFT-6	4	1½	1½	2	V	11	2	14	1½	36½	2	F	50	2½	1½	2	50	2½	1½	2	84	52	189	32	10
Harvey WHT-10	4	1½	1½	2	V	12	2	14	1½	36½	2	F	20½	4	1½	4	20½	3	1½	4	86	52½	191½	35	9
Hawkeye O	4	1½	1	1	V	12	2	9	1½	1	1½	F													
Hawkeye K	4	1½	1	1	V	12	2	9	1½	1	1½	F													
Hawkeye M	4	1½	1½	1½	V	12	2½	9	1½	1	2	F													
Hawkeye N	4	1½	1½	1½	V	14	2½	12	1½	1	2½	F													
Hug T	4	1½	1	1	V	12	1½	13	1½	1	1½	F													
Hurlburt A1½-2	3	1½	1	1	V	11	1½	11	1½	1	1½	F	22	2	1½	2	22	2	1½	2	Opt	132			
Hurlburt B2½	3	1½	1	1	V	11	1½	11	1½	1	1½	F	24	2½	1½	2	23	2½	1½	2	154				
Hurlburt C3½-4	3	1½	1½	1½	V	11	1½	11	1½	1	1½	F	26	3	1½	2	25	3	1½	2	144½				
Hurlburt D5-5½	3	1½	1½	1½	V	11	1½	11	1½	1	1½	F	28	3	1½	2	27	3	1½	2	144½				
Indiana 12-1½	3	1½	1½	1½	V	17	1½	14	1½	38½	1	F	19	2	1½	4	19	2	1½	4	120	76	207½	32	10½
Indiana 20-2	3	1½	1½	1½	V	6	1½	13	1½	26½	1	F	22½	2½	1½	4	22½	2½	1½	4	126	74½	217	33	10½
Indiana 25-2½	3	1½	1½	1½	V	6	1½	13	1½	26½	1	F	22½	2½	1½	4	22½	2½	1½	4	138	81	229	33	9½
Indiana 35-3½	3	1½	1½	1½	V	6	1½	13	1½	26½	1	F	20½	4	1½	4	20½	3	1½	4	144	84	235	34	8½
Indiana 51-5	3	1½	1½	1½	V	10	1½	17½	1½	40	1½	F	65	3	1½	2	65	3	1½	2	156	91	253	37	10½
Inter'l S-2000 lbs.-Sp. Tr.	3	1½	1½	1½	V	9½	1½	17½	1½	30½	1	F	38	2	1½	2	36	2	1½	2	88				
International 33-3000 lbs.	4	1½	1½	1½	V	6½	1½	6½	1½	43½	1	F	43	2½	1½	2	43	2½	1½	2	101½	57½	194½	34	11½
International 43-4000 lbs.	4	1½	1½	1½	V	6½	1½	6½	1½	43½	1	F	50	2½	1½	2	50	2½	1½	2	109	59½	202	32	11½
International 63-6000	4	1½	1½	1½	V	9	1½	14½	1½	46	1½	F	50	2½</											

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME					
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length		Width			
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Lange F 3 1/2	4	1 1/4	1 1/8	1 1/8	V	5	1 1/2	15 1/2	1 1/2	45	1 1/2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	139	88	227 1/2	37	9 1/2
Lange E-2 1/2	4	1 1/4	1 1/8	1 1/8	V	9	1 1/2	15 1/2	1 1/2	42	1 1/2	F	11 1/2	3 1/2	3/4	4	11 1/2	3 1/2	3/4	4	139	85	229	33	10
Larrabee X2-1-1 1/4 Ton.	3	1 1/4	1 1/8	1 1/8	V	6	1 1/2	14	1 1/2	34	1 1/2	F	50	2	3/4	4	50	2	3/4	4	108	59	205	34	11
Larrabee J4-1 1/4-2 1/4 Ton.	4	1 1/4	1 1/8	1 1/8	V	6 1/2	1 1/2	10	1 1/2	41	1 1/2	F	19	2	2 1/4	4	19	2	2 1/4	4	108	67 1/2	199	34	10 1/2
Larrabee K5-2 1/4-3 1/4 Ton.	4	1 1/4	1 1/8	1 1/8	V	6	1 1/2	11	1 1/2	45 1/2	1 1/2	F	21	2 1/2	3/4	4	21	2 1/2	3/4	4	Opt	Opt	Opt	34	9 1/2
Larrabee L4-3 1/4-4 1/4 Ton.	4	1 1/4	1 1/8	1 1/8	V	6	1 1/2	11	1 1/2	45 1/2	1 1/2	F	21	4	3/4	4	21	3	3/4	4	Opt	Opt	Opt	36	9
Maccor EX	3	1 1/4	1 1/8	1 1/8	V	4 1/2	1 1/2	15	1 1/2	35 1/2	1 1/4	F	50	2	3/4	4	48	2	3/4	4	101 1/2	68	192 1/2	37	9 1/2
Maccor L-1, 1 1/2	4	1 1/4	1 1/8	1 1/8	V	4	1 1/2	19	1 1/2	35	2	F	11 1/2	3 1/2	3/4	4	11 1/2	3 1/2	3/4	4	125 1/2	74 1/2	228 1/2	34	10 1/2
Maccor H-1, 3	4	1 1/4	1 1/8	1 1/8	V	4	1 1/2	19	1 1/2	37 1/2	2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	139 1/2	79 1/2	243 1/2	34	10
Maccor M-2, 4	4	1 1/4	1 1/8	1 1/8	V	4	1 1/2	19	1 1/2	37 1/2	2	F	14 1/2	3 1/2	3/4	4	14 1/2	3 1/2	3/4	4	153 1/2	91 1/2	257 1/2	34	8 1/2
Maccor G-1, 5	4	1 1/4	1 1/8	1 1/8	V	8	1 1/2	16 1/2	1 1/2	40 1/2	2	F	18	4	3/4	4	18	4	3/4	4	163 1/2	99 1/2	278	37 1/2	10
Maccor HT	4	1 1/4	1 1/8	1 1/8	V	4	1 1/2	19	1 1/2	35	2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	139 1/2	79 1/2	243 1/2	34	10
Mack AB-1 1/4, 2, 2 1/4-T-Ch	3	1 1/4	1 1/8	1 1/8	V	7 1/2	1 1/2	5 1/2	1 1/2	36	1 1/4	F	11 1/2	3 1/2	3/4	4	16 1/2	2 1/2	3/4	4	Opt	Opt	Opt	34	9 1/2
Mack Dual R'd'n-1 1/2, 2, 2 1/2	3	1 1/4	1 1/8	1 1/8	V	7 1/2	1 1/2	5 1/2	1 1/2	36 1/2	1 1/4	F	18 1/2	3 1/2	3/4	4	12	6	3/4	4	Opt	Opt	Opt	34	9 1/2
Mack AB-Tractor-5	3	1 1/4	1 1/8	1 1/8	V	7 1/2	1 1/2	5 1/2	1 1/2	36 1/2	1 1/4	F	11 1/2	3 1/2	3/4	4	16 1/2	2 1/2	3/4	4	77	79 1/2	243 1/2	34	9 1/2
Mack AC-3 1/2, 5, 6 1/2, 7 1/2	3	1 1/4	1 1/8	1 1/8	V	5	1 1/2	3 1/2	2	36	1 1/2	F	16 1/2	3	3/4	4	20 1/2	3 1/2	3/4	4	Opt	Opt	Opt	37 1/2	9 1/2
Mack AC-Trac-7, 10, 13, 15	3	1 1/4	1 1/8	1 1/8	V	5	1 1/2	3 1/2	2	36	1 1/2	F	16 1/2	3	3/4	4	20 1/2	3 1/2	3/4	4	87	50 1/2	175	30	10
Mason Road King	3	1 1/4	1 1/8	1 1/8	V	11 1/2	2	14 1/2	1 1/2	31	1 1/2	F	42 1/2	2 1/2	3/4	4	40 1/2	2 1/2	3/4	4	85	50 1/2	175	30	10
Master 22-1 1/2	4	1 1/4	1 1/8	1 1/8	V	13 1/2	2	12 1/2	1 1/2	30 1/2	1 1/2	F	12	3 1/2	3/4	4	12	3 1/2	3/4	4	Opt	Opt	Opt	34 1/2	9 1/2
Master 41-2 1/2	4	1 1/4	1 1/8	1 1/8	V	13 1/2	2	12 1/2	1 1/2	31	1 1/2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	117 1/2	92 1/2	246	34	9 1/2
Master 51-3 1/2	4	1 1/4	1 1/8	1 1/8	V	13 1/2	2	15	1 1/2	35	2	F	16	3 1/2	3/4	4	16	3 1/2	3/4	4	147 1/2	96 1/2	256 1/2	36 1/2	9 1/2
Master 61-5	4	1 1/4	1 1/8	1 1/8	V	13 1/2	2	15	1 1/2	35	2	F	13 1/2	4	3/4	4	18	4	3/4	4	162 1/2	96 1/2	256 1/2	36 1/2	9 1/2
Master 64-5-6	4	1 1/4	1 1/8	1 1/8	V	13 1/2	2	15	1 1/2	37	2	F	13 1/2	4	3/4	4	18	4	3/4	4	162 1/2	96 1/2	256 1/2	36 1/2	9 1/2
Maxwell 1 1/2	3	1 1/4	1 1/8	1 1/8	V	7 1/2	2 1/2	3 1/2	2	36 1/2	1 1/2	F	31	1 1/2	3/4	4	24 1/2	2	3/4	4	102	92 1/2	246	34	9 1/2
Menominee Hurryton-1	3	1 1/4	1 1/8	1 1/8	V	6	1 1/2	12	1 1/2	40	1 1/2	F	11	2 1/2	3/4	4	11	2 1/2	3/4	4	102 1/2	92 1/2	246	34	9 1/2
Menominee H-1 1/2	3	1 1/4	1 1/8	1 1/8	V	3	1 1/2	3	1 1/2	37 1/2	2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	122	92 1/2	246	34	9 1/2
Menominee D-2	3	1 1/4	1 1/8	1 1/8	V	3	1 1/2	3	1 1/2	37 1/2	2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	146	92 1/2	246	34	9 1/2
Menominee HT-1 1/2	3	1 1/4	1 1/8	1 1/8	V	9 1/2	3	10 1/2	1 1/2	33 1/2	1 1/2	F	47 1/2	2 1/2	3/4	4	52	2 1/2	3/4	4	102 1/2	92 1/2	246	34	9 1/2
Menominee J-3, 5	3	1 1/4	1 1/8	1 1/8	V	3	1 1/2	3	1 1/2	40 1/2	2	F	69 1/2	3 1/2	3/4	4	52	2 1/2	3/4	4	149	92 1/2	246	34	9 1/2
Menominee G-3 1/2	3	1 1/4	1 1/8	1 1/8	V	3	1 1/2	3	1 1/2	37 1/2	2	F	15 1/2	3 1/2	3/4	4	15 1/2	3 1/2	3/4	4	149	92 1/2	246	34	9 1/2
Moreland RR-1	3	1 1/4	1 1/8	1 1/8	V	8	1 1/2	11 1/4	1 1/2	34	1 1/2	F	49	2 1/2	3/4	4	46	2 1/2	3/4	4	108	56 1/2	208 1/2	34	9 1/2
Moreland BX-1 1/2	3	1 1/4	1 1/8	1 1/8	V	8	1 1/2	11 1/4	1 1/2	34	1 1/2	F	12	3 1/2	3/4	4	12	3 1/2	3/4	4	108	56 1/2	208 1/2	34	9 1/2
Moreland EX-2	3	1 1/4	1 1/8	1 1/8	V	9	1 1/2	14 1/2	1 1/2	42	1 1/2	F	12	3 1/2	3/4	4	12	3 1/2	3/4	4	132	79 1/2	226 1/2	34	9 1/2
Moreland AX-3	3	1 1/4	1 1/8	1 1/8	V	9	1 1/2	13	1 1/2	42	1 1/2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	174	101 1/2	253	34	9 1/2
Moreland RX-5	4	1 1/4	1 1/8	1 1/8	V	8	1 1/2	14 1/2	1 1/2	42	1 1/2	F	15 1/2	3 1/2	3/4	4	15 1/2	3 1/2	3/4	4	192	115 1/2	271	38	9 1/2
Moreland RC-Bus	3	1 1/4	1 1/8	1 1/8	H	8	1 1/2	11 1/4	1 1/2	34	1 1/2	F	49	2 1/2	3/4	4	46	2 1/2	3/4	4	156	100	256	34	7
Moreland EC-Bus	3	1 1/4	1 1/8	1 1/8	H	9	1 1/2	13	1 1/2	42	1 1/2	F	13 1/2	3 1/2	3/4	4	13 1/2	3 1/2	3/4	4	152	102	254	34	8
Moreland AC-Bus	3	1 1/4	1 1/8	1 1/8	H	9	1 1/2	13	1 1/2	42	1 1/2	F	15 1/2	3 1/2	3/4	4	15 1/2	3 1/2	3/4	4	171	114 1/2	271	44	7
Nash 2018-1-1 1/2	4	1 1/4	1 1/8	1 1/8	V	3	1 1/2	7 1/2	1 1/2	36	1	F	49 1/2	2	3/4	4	20 1/2	2 1/2	3/4	4	104 1/2	61	193	30 1/2	9 1/2
Nash 3018-2-2 1/2	4	1 1/4	1 1/8	1 1/8	V	3	1 1/2	7 1/2	1 1/2	44	1	F	50 1/2	3	3/4	4	20 1/2	2 1/2	3/4	4	118 1/2	65	207	31 1/2	9 1/2
Nash 4017-2-2 1/2	4	1 1/4	1 1/8	1 1/8	V	7	1 1/2	11	1 1/2	44	1	F	49 1/2	2 1/2	3/4	4	25 1/2	2 1/2	3/4	4	117 1/2	85 1/2	202 1/2	38 1/2	14 1/2
National FA-1	3	1 1/4	1 1/8	1 1/8	V	17	1 1/2	11	1 1/2	44	1	F	11	3	3/4	4	11	3	3/4	4	97 1/2	58 1/2	194	34	10 1/2
National GA-1 1/2	3	1 1/4	1 1/8	1 1/8	V	17	1 1/2	11	1 1/2	44	1	F	12	3 1/2	3/4	4	12	3 1/2	3/4	4	111 1/2	63 1/2	208	34	9 1/2
National HD-2 1/2	3	1 1/4	1 1/8																						

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING								FRAME						
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service				Emergency				Length			Width			
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	★ Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Perfection A.....	3	1 1/4	1 1/4	1 1/4	V	9	2 1/2	6	2 1/2	43 1/2	5 1/2	V	10 1/2	2 1/2	1/4	4	10 1/2	2 1/2	1/4	4	95 1/2	67 1/2	175	32	10 1/2
Perfection B.....	3	1 1/4	1 1/4	1 1/4	V	9	2 1/2	6	2 1/2	43 1/2	5 1/2	V	10 1/2	2 1/2	1/4	4	10 1/2	2 1/2	1/4	4	104 1/2	76 1/2	184	32	10 1/2
Perfection C.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	41 1/2	1 1/2	V	10 1/2	2 1/2	1/4	4	10 1/2	2 1/2	1/4	4	117 1/2	78 1/2	217	34	10 1/2
Perfection D.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	41 1/2	1 1/2	V	10 1/2	2 1/2	1/4	4	10 1/2	2 1/2	1/4	4	103 1/2	64 1/2	203	34	9 1/2
Perfection E.....	4	1 1/4	1 1/4	1 1/4	V	12	2 1/2	6	2 1/2	40 1/2	2 1/2	V	12	2 1/2	1/4	4	12	2 1/2	1/4	4	116 1/2	80 1/2	205	38	12 1/2
Perfection EA.....	4	1 1/4	1 1/4	1 1/4	V	12	2 1/2	6	2 1/2	40 1/2	2 1/2	V	12	2 1/2	1/4	4	12	2 1/2	1/4	4	146 1/2	110 1/2	235	38	12 1/2
Pierce Arrow KA-2.....	3	1 1/4	1 1/4	1 1/4	V	16 1/2	2 1/2	14 1/2	2 1/2	43 1/2	1 1/2	V	22 1/2	2 1/2	1/4	4	22 1/2	2 1/2	1/4	4	125 1/2	70 1/2	225	34 1/2	8 1/2
Pierce Arrow XB-3.....	3	1 1/4	1 1/4	1 1/4	V	16 1/2	2 1/2	14 1/2	2 1/2	43 1/2	1 1/2	V	22 1/2	2 1/2	1/4	4	22 1/2	2 1/2	1/4	4	125 1/2	70 1/2	225	34 1/2	8 1/2
Pierce Arrow WC-4.....	3	1 1/4	1 1/4	1 1/4	V	11	2 1/2	15 1/2	2 1/2	43 1/2	1 1/2	V	18	2 1/2	1/4	4	18	2 1/2	1/4	4	133 1/2	78 1/2	237	38 1/2	7 1/2
Pierce Arrow WD-5.....	3	1 1/4	1 1/4	1 1/4	V	11	2 1/2	15 1/2	2 1/2	43 1/2	1 1/2	V	18	2 1/2	1/4	4	18	2 1/2	1/4	4	133 1/2	78 1/2	237	38 1/2	7 1/2
Pierce Arrow RE-6.....	3	1 1/4	1 1/4	1 1/4	V	11	2 1/2	15 1/2	2 1/2	43 1/2	1 1/2	V	20 1/2	2 1/2	1/4	4	20 1/2	2 1/2	1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow RF-7.....	3	1 1/4	1 1/4	1 1/4	V	11	2 1/2	15 1/2	2 1/2	43 1/2	1 1/2	V	20 1/2	2 1/2	1/4	4	20 1/2	2 1/2	1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow KB-TT.....	3	1 1/4	1 1/4	1 1/4	V	16 1/2	2 1/2	14 1/2	2 1/2	43 1/2	1 1/2	V	22 1/2	2 1/2	1/4	4	22 1/2	2 1/2	1/4	4	77 1/2	48 1/2	172 1/2	34 1/2	8 1/2
Pierce Arrow WD-TT.....	3	1 1/4	1 1/4	1 1/4	V	11	2 1/2	15 1/2	2 1/2	43 1/2	1 1/2	V	18	2 1/2	1/4	4	18	2 1/2	1/4	4	77 1/2	48 1/2	172 1/2	34 1/2	8 1/2
Pierce Arrow RF-TT.....	3	1 1/4	1 1/4	1 1/4	V	11	2 1/2	15 1/2	2 1/2	43 1/2	1 1/2	V	20 1/2	2 1/2	1/4	4	20 1/2	2 1/2	1/4	4	77 1/2	48 1/2	172 1/2	34 1/2	8 1/2
Pioneer 59AA-1.....	3	1 1/4	1 1/4	1 1/4	V	13	2 1/2	12	2 1/2	35	1 1/2	V	14	2 1/2	1/4	4	14	2 1/2	1/4	4	102 1/2	74 1/2	210	30	.....
Pittsburgher A 1 1/2-2.....	3	1 1/4	1 1/4	1 1/4	V	6	2 1/2	12	1 1/2	37	1 1/2	V	24	2 1/2	1/4	4	24	2 1/2	1/4	4	126 1/2	84 1/2	220	32	.....
Pittsburgher C 2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	6	2 1/2	16	1 1/2	43	2 1/2	V	26	2 1/2	1/4	4	26	2 1/2	1/4	4	136 1/2	84 1/2	220	32	.....
Pittsburgher D 3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	6	2 1/2	16	1 1/2	43	2 1/2	V	26	2 1/2	1/4	4	26	2 1/2	1/4	4	136 1/2	84 1/2	220	32	.....
Power 1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8	2 1/2	10	1 1/2	36	1 1/2	V	11 1/2	2 1/2	1/4	4	11 1/2	2 1/2	1/4	4	143 1/2	.....	.....	32	10 1/2
Power F-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	8	2 1/2	12 1/2	1 1/2	36	1 1/2	V	26 1/2	2 1/2	1/4	4	26 1/2	2 1/2	1/4	4	143 1/2	.....	.....	32	12
Power C-3 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	2 1/2	12	1 1/2	36	1 1/2	V	59	2 1/2	1/4	1	45	2 1/2	1/4	1	.....	.....	.....	36	12
Rainier R31-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	2 1/2	6	2 1/2	43 1/2	5 1/2	V	11	2 1/2	1/4	4	11	2 1/2	1/4	4	86 1/2	50 1/2	181	34	11 1/2
Rainier R-29-1.....	3	1 1/4	1 1/4	1 1/4	V	8	2 1/2	14	1 1/2	40	1 1/2	V	11 1/2	2 1/2	1/4	4	11 1/2	2 1/2	1/4	4	96 1/2	57 1/2	190 1/2	34	10 1/2
Rainier R36-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	42	1 1/2	V	20	2 1/2	1/4	4	20	2 1/2	1/4	4	111 1/2	72 1/2	206 1/2	34	9 1/2
Rainier R28-2 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	42	1 1/2	V	13	2 1/2	1/4	4	13	2 1/2	1/4	4	124 1/2	80 1/2	225	33	9 1/2
Rainier R20-2 1/2-3.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	42	1 1/2	V	15 1/2	2 1/2	1/4	4	15 1/2	2 1/2	1/4	4	137 1/2	85 1/2	241 1/2	33	10
Rainier R25-3 1/2-5.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	42	1 1/2	V	18	2 1/2	1/4	4	18	2 1/2	1/4	4	157 1/2	91 1/2	263 1/2	37	8 1/2
Rainier R27-6 7.....	4	1 1/4	1 1/4	1 1/4	V	9 1/2	2 1/2	14	1 1/2	42	1 1/2	V	58	2 1/2	1/4	2	43	2 1/2	1/4	2	154 1/2	88 1/2	263 1/2	37	9 1/2
Red Ball.....	3	1 1/4	1 1/4	1 1/4	V	5 1/2	1 1/2	5 1/2	1 1/2	39	1 1/2	V	45 1/2	3 1/2	1/4	1	40 1/2	3 1/2	1/4	1	167 1/2	104 1/2	267	34	10 1/2
Reo F-2500 lbs.....	3	1 1/4	1 1/4	1 1/4	V	10 1/2	2 1/2	10 1/2	1 1/2	32 1/2	1 1/2	V	24	2 1/2	1/4	4	24	2 1/2	1/4	4	81 1/2	55 1/2	171	30	10 1/2
Rowe CDW-2.....	4	1 1/4	1 1/4	1 1/4	V	20	2 1/2	15 1/2	1 1/2	36 1/2	2 1/2	V	24	2 1/2	1/4	4	24	2 1/2	1/4	4	123 1/2	79 1/2	202 1/2	33	10 1/2
Rowe CDW-2 1/2.....	4	1 1/4	1 1/4	1 1/4	V	20	2 1/2	15 1/2	1 1/2	36 1/2	2 1/2	V	24	2 1/2	1/4	4	24	2 1/2	1/4	4	123 1/2	103 1/2	224	33	9 1/2
Rowe GSW-3.....	3	1 1/4	1 1/4	1 1/4	V	20	2 1/2	15 1/2	1 1/2	36 1/2	2 1/2	V	54	2 1/2	1/4	2	54	2 1/2	1/4	2	140 1/2	96 1/2	224	33	9 1/2
Rowe HW-4.....	3	1 1/4	1 1/4	1 1/4	V	20	2 1/2	15 1/2	1 1/2	36 1/2	2 1/2	V	68	3 1/2	1/4	2	68	3 1/2	1/4	2	146 1/2	96 1/2	230 1/2	36	9
Rowe FW-5.....	3	1 1/4	1 1/4	1 1/4	V	12 1/2	2 1/2	20	2 1/2	34 1/2	1 1/2	V	43 1/2	2 1/2	1/4	2	39	1 1/2	1/4	2	153 1/2	107 1/2	237 1/2	38 1/2	10 1/2
Ruggles 15-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	2 1/2	13 1/2	1 1/2	35	1 1/2	V	48	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	128 1/2	97 1/2	170	38 1/2	9 1/2
Ruggles 20R-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	2 1/2	13 1/2	1 1/2	35	1 1/2	V	48	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	96 1/2	55 1/2	186 1/2	34	11 1/2
Ruggles 20AR-1 1/2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	2 1/2	13 1/2	1 1/2	35	1 1/2	V	47 1/2	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	104 1/2	65 1/2	194 1/2	34	11 1/2
Ruggles 40H-2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	2 1/2	13 1/2	1 1/2	35	1 1/2	V	58	2 1/2	1/4	2	33 1/2	2 1/2	1/4	2	134 1/2	75 1/2	224	34	8 1/2
Ruggles 40H-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	7 1/2	2 1/2	13 1/2	1 1/2	35	1 1/2	V	47 1/2	2 1/2	1/4	2	44	2 1/2	1/4	2	134 1/2	75 1/2	224		

Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE											BRAKE LINING								FRAME					
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length			Width		
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Stoughton D-2.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	14	1 1/4	44	2	F	23	2 1/4	1/4	4	23	2 1/4	1/4	4	116	70	210	34	9 1/4
Stoughton F-3.....	3	1 1/4	1 1/4	1 1/4	V	10	2	15	1 1/4	44	2	F	23	2 1/4	1/4	4	23	2 1/4	1/4	4	127	82	222	36	9 1/4
Super Truck 50.....	3	1 1/4	1 1/4	1 1/4	V	18 1/2	1 1/4	19	1 1/4	37 1/2	1 1/4	F	51 1/2	2 1/4	1/4	2	51 1/2	1 1/4	1/4	2	135	84	243	36	9 1/4
Super Truck 70.....	3	1 1/4	1 1/4	1 1/4	V	18 1/2	1 1/4	19	1 1/4	37 1/2	1 1/4	F	55 1/2	2 1/4	1/4	2	55 1/2	1 1/4	1/4	2	144	97 1/2	249	34	10 1/4
Super Truck 100.....	3	1 1/4	1 1/4	1 1/4	V	6	1 1/4	19	1 1/4	42	1 1/4	F	68	3	1/4	2	51 1/2	3	1/4	2	144	97 1/2	249	34	10
Traffic C-4000.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/2	1/4	2	38	1 1/4	1/4	2	120 1/4	67 1/4	213 1/4	42	10 1/4
Traffic 6000.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	52	2 1/2	1/4	2	47	2	1/4	2	120 1/4	69 1/4	213 1/4	34	11 1/4
Traffic Speedboy.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/2	1/4	2	38	1 1/4	1/4	2	120 1/4	69 1/4	213 1/4	34	11 1/4
Transport 15-1.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	13	2	40 1/4	1 1/4	F	43 1/2	2 1/2	1/4	2	38	1 1/4	1/4	2	98 1/4	57 1/4	174	34	10 1/4
Transport 26-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/4	1 1/4	13	1 1/4	34 1/4	1 1/4	F	48 1/2	2 1/2	1/4	2	46 1/2	2 1/4	1/4	2	113 1/4	70 1/4	201	34	11
Transport 36-2.....	4	1 1/4	1 1/4	1 1/4	V	10 1/4	1 1/4	16	1 1/4	33 1/2	1 1/4	F	10 1/4	3 1/2	1/4	2	46 1/2	1 1/4	1/4	2	120 1/4	72 1/4	210	34	10
Transport 61-3 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/4	1 1/4	16	1 1/4	33 1/2	1 1/4	F	11 1/4	3 1/2	1/4	2	48 1/2	2 1/4	1/4	2	127 1/4	78 1/4	218	34	11
Transport 75-5.....	4	1 1/4	1 1/4	1 1/4	V	12	2	16	1 1/4	35 1/2	1 1/4	F	11 1/4	3 1/2	1/4	2	58	2 1/4	1/4	2	150 1/4	93 1/4	251 1/4	36 1/2	10 1/2
Traylor B.....	4	1 1/4	1 1/4	1 1/4	V	10	2	6	1 1/4	38	2	F	50	2 1/2	1/4	2	50	2	1/4	2	117	75	204 1/4	34	10 1/2
Traylor C.....	4	1 1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	50	2 1/2	1/4	2	50	2	1/4	2	122	73 1/2	218 1/2	34	10 1/2
Traylor D.....	4	1 1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	56 1/2	2 1/2	1/4	2	56 1/2	2 1/4	1/4	2	142	76	241 1/2	34	9 1/4
Traylor F.....	4	1 1/4	1 1/4	1 1/4	V	14	2	14	1 1/4	37	2	F	59	2 1/2	1/4	2	59	2 1/2	1/4	2	165	92 1/2	273 1/2	35	11
Triangle AA-1.....	3	1 1/4	1 1/4	1 1/4	H	17	2	17	2	34	1	F	22 1/2	1 1/4	1/4	2	48	2 1/2	1/4	2	94	53	177	35	10
Triangle A-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	14	1 1/4	14 1/2	1 1/4	39 1/4	1 1/2	F	7 1/2	4	1/4	2	49	2	1/4	2	126	77 1/2	225	34	12
Triangle B 2 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9	1 1/4	18	1 1/4	39 1/4	1 1/2	F	7 1/2	4	1/4	2	52	3	1/4	2	132	84 1/2	217 1/2	34	9
Triangle C-2.....	4	1 1/4	1 1/4	1 1/4	V	14	1 1/4	14 1/2	1 1/4	39 1/4	1 1/2	F	7 1/2	4	1/4	2	52	3	1/4	2	129	81	219 1/2	34	12
Ultimate A-2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	126	70	212	34	32 1/4
Ultimate AJ2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	126	70	212	34	32 1/4
Ultimate AJL-2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	150	70	212	34	32 1/4
Ultimate AJXL.....	4	1 1/4	1 1/4	1 1/4	V	12	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	144	70	212	34	32 1/4
Ultimate B-3.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	144	70	212	34	32 1/4
Ultimate BL3.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	144	70	212	34	32 1/4
Ultimate D-5.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	51	2 1/2	1/4	2	51	2 1/2	1/4	2	180	77 1/2	224	32	11 1/4
Union FW-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	20	1 1/4	19 1/2	1 1/4	37 1/4	2	F	26	4 1/4	1/4	1	52	3	1/4	1	133 1/4	77 1/4	224	32	11 1/4
Union H-4.....	3	1 1/4	1 1/4	1 1/4	V	20	1 1/4	19 1/2	1 1/4	37 1/4	2	F	56 1/4	3 1/2	1/4	1	32	4 1/4	1/4	1	157 1/4	98	264	34	13 1/4
Union HW-4.....	3	1 1/4	1 1/4	1 1/4	V	20	1 1/4	19 1/2	1 1/4	37 1/4	2	F	26	4 1/4	1/4	1	24	4	1/4	2	157 1/4	98	264	34	13 1/4
United Highway Spec.....	3	1 1/4	1 1/4	1 1/4	V	14	2	19	2	34 1/4	1 1/4	F	48	2 1/2	1/4	2	46 1/2	2 1/4	1/4	2	92	53 1/2	182	33	9 1/4
United 30.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/4	1 1/2	F	48	2 1/2	1/4	2	46 1/2	2 1/4	1/4	2	115 1/2	75 1/2	206	33	10 1/2
United 35.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/4	1 1/2	F	47	2 1/2	1/4	2	46 1/2	2 1/4	1/4	2	115 1/2	75 1/2	206	33	9
United 50.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/4	1 1/2	F	47	2 1/2	1/4	2	46 1/2	2 1/4	1/4	2	132 1/2	80 1/2	226	33	8 1/2
United 60.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/4	1 1/2	F	57 1/2	2 1/2	1/4	2	42 1/2	2 1/4	1/4	2	132 1/2	80 1/2	226	33	8 1/2
United 80.....	4	1 1/4	1 1/4	1 1/4	V	8 1/2	2	13 1/2	1 1/2	42	2	F	57 1/2	2 1/2	1/4	2	42 1/2	2 1/4	1/4	2	141 1/2	81 1/2	237 1/2	34	9 1/4
U.S.U.-1 1/4.....	4	1 1/4	1 1/4	1 1/4	V	11 1/2	1 1/4	11 1/2	1 1/4	33	1 1/4	F	50 1/2	2 1/2	1/4	2	20	1 1/2	1/4	2	108	70	195	32	9 1/4
U.S.N.-1 1/2.....	4	1 1/4	1 1/4	1 1/4	H	11 1/2	1 1/4	9	1 1/4	37	1 1/4	F	50 1/2	2 1/2	1/4	2	46 1/2	1 1/4	1/4	2	120	82	211	34	11
U.S.N.W.-23-1 1/2-2.....	4	1 1/4	1 1/4	1 1/4	H	10 1/4	1 1/4	11 1/2	1 1/4	33	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	120	82	211	34	11
U.S.R.-2 1/2-3.....	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10	1 1/4	35	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	144	94	241	34	9 1/4
U.S.S.-3 1/2-4.....	4	1 1/4	1 1/4	1 1/4	V	9	1 1/4	8	1 1/4	37	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	156	104	258	36	9
U.S.T. 5-7.....	4	1 1/4	1 1/4	1 1/4	V	15	2	13	1 1/2	38 1/2	2	F	62	3	1/4	4	33	4	1/4	1	168	103	278	36	10 1/4
U.S.S.Spec. 4-5.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	8	1 1/4	37	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	156	103	278	36	10 1/4
Wachusett S-1.....	3	1 1/4	1 1/4	1 1/4	V	9 1/2	1 1/4	11	1 1/4	31 1/2	1 1/4	F	11 1/4	2 1/2	1/4	2	11 1/4	2 1/2	1/4	2	115	74	212	33	.....
Wachusett J-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10 1/2	1 1/4	36	1 1/4	F</													

KEY OF ABBREVIATIONS

Engine:

Buda—Buda Co., Harvey, Ill.
 Cont—Continental Motors Corp., Detroit, Mich.
 GBS—Golden, Belknap & Swartz Co., Detroit, Mich.
 Her—Hercules Motor Mfg. Co., Canton, Ohio.
 Hin—Hinkley Motors, Inc., Detroit, Mich.
 H-Sp.—Herschell-Spillman Motor Co., North Tonawanda, N. Y.
 HS—Holl Scott Motor Co., Berkeley, Cal.
 Lyco—Lycoming Motors Corp., Williamsport, Pa.
 Mid—Midwest Engine Co., Indianapolis, Ind.
 Wau—Waukesha Motor Co., Waukesha, Wis.
 Wis—Wisconsin Motor Mfg. Co., Milwaukee, Wis.

Radiator:

Bre—Bremer-Tully Mfg. Co., Chicago, Ill.
 Bus—Bush Mfg. Co., Hartford, Conn.
 Cor—Corcoran Mfg. Co., Cincinnati, Ohio.
 Chic—Chicago Mfg. Co., Chicago, Ill.
 EM—English & Mersick Co., New Haven, Conn.
 Fed—Fedders Mfg. Co., Buffalo, N. Y.
 Flex—Flexo Mfg. Co., Los Angeles, Cal.
 GO—G. & O. Mfg. Co., New Haven, Conn.
 Har—Harrison Radiator Corp., Lockport, N. Y.
 Idl—Ideal Sheet Metal Works, Chicago, Ill.
 Lng—Long Mfg. Co., Detroit, Mich.
 McC—McCord Radiator & Mfg. Co., Detroit, Mich.
 McK—McKinnon Dash Co., Buffalo, N. Y.
 Mod—Modine Mfg. Co., Racine, Wis.
 Per—Racine Radiator Co., Racine, Wis.
 R-T—Rome Turney Radiator Co., Rome, N. Y.
 SJ—Shotwell Johnson Co., Minneapolis, Minn.
 Spli—Splitdorf Electrical Co., Newark, N. J.
 Stn—Standard Radiator Co., Inc., Springfield, N. Y.
 US—U. S. Cartridge Co., Lowell, Mass.
 Whe—Wheeler Radiator & Mfg. Co., E. Cleveland, Ohio.

Carburetor:

Cart—Carter Carburetor Co., St. Louis, Mo.
 Ens—Ensign Carburetor Co., Los Angeles, Cal.
 Hol—Holley Carburetor Co., Detroit, Mich.
 John—Johnson Co., Detroit, Mich.
 Mar—Marvel Carburetor Co., Flint, Mich.
 Rayf—Beneke & Kropf Mfg. Co., Chicago, Ill.
 Scoe—Briscoe Devices Corp., Pontiac, Mich.
 Strm—Stromberg Motor Devices Co., Chicago, Ill.
 Sheb—Wheeler Schebler Carburetor Co., Indianapolis, Ind.
 Stew—Detroit Lubricator Co., Detroit, Mich.
 Till—Tillotson Mfg. Co., Toledo, Ohio.
 Zen—Zenith-Detroit Corp., Detroit, Mich.

Governor:

Con—Continental Motors Corp., Detroit, Mich.
 Dup—Duplex Engine Governor Co., Brooklyn, N. Y.
 Han—Handy Governor Co., Detroit, Mich.
 Hin—Hinkley Motors, Inc., Detroit, Mich.
 McC—E. R. Klemm, Chicago, Ill.
 Mon—Monarch Governor Co., Detroit, Mich.
 Phar—Pharo Mfg. Co., Detroit, Mich.
 Pier—Pierce Governor Co., Anderson, Ind.
 Sim—Duplex Engine Governor Co., Brooklyn, N. Y.
 Wau—Waukesha Motor Co., Waukesha, Wis.

Ignition System:

AC—Allis Chalmers Mfg. Co., Milwaukee, Wis.
 Apo—Apollo Magneto Corp., Apollo, Pa.
 ATK—Atwater Kent Mfg. Co., Philadelphia, Pa.
 AuL—Electric Auto-Lite Corp., Toledo, O.
 Ber—Ericsson Mfg. Co., Buffalo, N. Y.
 Bj—Bijur Motor Appliance Co., Hoboken, N. J.
 Bos—American Bosch Magneto Co., Springfield, Mass.
 Con—Connecticut Telephone & Electric Co., Meriden, Conn.
 Del—Dayton Engineering Laboratories Co., Dayton, Ohio.
 Dy—Owen Dyneto Corp., Syracuse, N. Y.
 Els—Elsemann Magneto Corp., Brooklyn, N. Y.
 GD—Gray & Davis, Boston, Mass.
 Kin—Kokomo Electric Co., Kokomo, Ind.
 KW—K. W. Ignition Co., Cleveland, Ohio.
 LN—Leece-Neville Co., Cleveland, O.
 NE—North East Electric Co., Rochester, N. Y.
 POL—Prest-O-Lite Co., Inc., Indianapolis, Ind.
 Rm—Remy Electric Co., Anderson, Ind.
 RBO—Robert Bosch Magneto Co., New York, N. Y.
 Sim—Simms Magneto Co., East Orange, N. J.
 Spl—Splitdorf Electrical Co., Newark, N. J.

Wag—Wagner Electric Mfg. Co., St. Louis, Mo.
 Wes—Westinghouse Elec. & Mfg. Co., Springfield, Mass.
 USL—U. S. Light & Heat Corp., Niagara Falls, N. Y.

Clutch & Gearset:

B.B.—Borg & Beck Co., Chicago, Ill.
 B-Li—Brown-Lipe Gear Co., Syracuse, N. Y.
 Cott—Cotta Transmission Corp., Rockford, Ill.
 Covert—Covert Gear Co., Lockport, N. Y.
 Det—A. J. Detlaff Co., Detroit, Mich.
 DG—Detroit Gear & Machine Co., Detroit, Mich.
 Dod—Dodge Brothers Co., Detroit, Mich.
 Dun—Dundore Mfg. Co., Reading, Pa.
 Durs—Durstun Gear Corp., Syracuse, N. Y.
 Full—Fuller & Sons Mfg. Co., Kalamazoo, Mich.
 G-Le—Grant Lee Gear Corp., Cleveland, O.
 Hart—Hartford Auto Parts Corp., Hartford, Conn.
 Hoos—Hoosier Clutch Co., Muncie, Ind.
 HS—Merchant & Evans Co., Phila., Pa.
 M-E—Merchant & Evans Co., Phila., Pa.
 MM—Mechanics Mach. Co., Rockford, Ill.
 Mun—Muncie Gear Works, Muncie, Ind.
 W-Gr—Warner Gear Co., Muncie, Ind.

Universal:

Ac—Acm—
 Bld—Blood Bros. Mach Co., Allegan, Mich.
 Det—Universal Products Co., Detroit, Mich.
 Hart—Hartford Auto Parts Corp., Hartford, Conn.
 MM—Mechanics Machine Co., Rockford, Ill.
 M-E—Merchant & Evans Co., Phila., Pa.
 Pet—Cleveland Universal Parts Co., Cleveland, Ohio.
 Pick—Carl Pick Co., West Bend, Wis.
 Snd—Snead & Co., Jersey City, N. J.
 Spic—Spicer Mfg. Corp., S. Plainfield, N. J.
 Ther—Thermoid Rubber Co., Trenton, N. J.
 UM—Universal Machine Co., Bowling Green, Ohio.
 UP—Universal Products Co., Detroit, Mich.

Springs:

Am—American Auto Parts Co., Detroit, Mich.
 Arm—General Motors Co., Pontiac, Mich.
 Bea—Beams Spring Co., Inc., Massillon, O.
 Bet—Betts Bros. Spring Co., Inc., San Francisco, Cal.
 Cham—Champion Auto Spring Co., St. Louis, Mo.
 Del—D. Delany & Son, Newark, N. J.
 Det—Detroit Steel Products Co., Detroit, Mich.
 GC—Garden City Spring Works, Chicago, Ill.
 Har—Harvey Spring & Forging Co., Racine, Wis.
 IC—Iron City Spring Co., Pittsburgh, Pa.
 Lig—Liggett Spring & Axle Co., Monongahela, Pa.
 Mar—Maremont Mfg. Co., Chicago, Ill.
 Math—Mather Spring Co., Toledo, O.
 Mer—E. R. Merrill Spring Co., New York, N. Y.
 Pen—Penn Spring Works, Baldwinsville, N. Y.
 Per—Perfection Spring Co., Cleveland, O.
 Phil—Phila. Springs Works, Phila., Pa.
 P.S.—Point Spring Co., Pittsburgh, Pa.
 Row—William & Harvey Rowland, Philadelphia, Pa.
 Shel—Sheldon Axle & Spring Co., Wilkes-Barre, Pa.
 SP—Spring Perch Co., Stratford, Conn.
 SS—Standard Steel Spring Co., Coraopolis, Pa.
 Ster—Sterling Spring Co., Cleveland, Ohio.
 Tem—Temme Spring Corp., Chicago, Ill.
 Tut—Tuthill Spring Co., Chicago, Ill.
 US—United States Spring Co., Los Angeles, Cal.
 Vul—Jenkins Vulcan Spring Co., Richmond, Ind.

Front and Rear Axles:

At—Atlas Axle Co., Wilmington, Del.
 Clark—Clark Equipment Co., Buchanan, Mich.
 Col—Columbia Axle Co., Cleveland, O.
 Cont—Continental Axle Co., Edgerton, Wis.
 Dod—Dodge Bros. Co., Detroit, Mich.
 Eat—Eaton Axle Co., Cleveland, Ohio.
 Fil—Flint Motor Axle Co., Flint, Mich.
 Huck—Huck Axle Co., Chicago, Ill.
 LM—L. M. Axle Co., Cleveland, Ohio.
 Russ—Russell Motor Axle Co., Detroit, Mich.
 Sals—Salisbury Axle Co., Jamestown, N. Y.
 Shel—Sheldon Axle & Spring Co., Wilkes-Barre, Pa.
 Shul—Shuler Axle Co., Inc., Louisville, Ky.
 Stn—Standard Parts Co., Cleveland, O.
 Tim—Timken Detroit Axle Co., Detroit, Mich.
 Torb—Eaton Axle & Spring Co., Cleveland, Ohio.
 Vul—Vulcan Motor Axle Co.
 Walk—Walker Axle Co., Chicago, Ill.
 Wis—Wisconsin Parts Co., Oshkosh, Wis.

Steering Gear:

CAS—C. A. S. Products Co., Columbus, O.
 Dit—Ditwiler Mfg. Co., Gallon, Ohio.
 Dod—Dodge Bros. Co., Detroit, Mich.
 Gem—Gemmer Mfg. Co., Detroit, Mich.
 Jac—Saginaw Products Co., Saginaw, Mich.
 Lav—Lavine Gear Co., Milwaukee, Wis.
 M-P—Muncie Gear Works Corp., Muncie, Ind.
 Ros—Ross Gear & Tool Co., Lafayette, Ind.
 Sag—Saginaw Products Co., Saginaw, Mich.
 Woh—Wohlrab Gear Co., Racine, Wis.

Wheels:

Are—Archibald Wheel Co., Lawrence, Mass.
 AuW—Auto Wheel Co., Lansing, Mich.
 Bim—Bimel Spoke & Auto Wheel Co., Portland, Ind.
 Bud—Budd Wheel Co., Phila., Pa.
 Cla—Clark Equipment Co., Buchanan, Mich.
 Day—Dayton Steel Foundry Co., Dayton, Ohio.
 Det—Detroit Panel & Plywood Co., Detroit, Mich.
 Dis—Disteel Wheel Corp., Detroit, Mich.
 Hay—Hayes Wheel Co., Jackson, Mich.
 Hoc—Hoopes, Bros. & Darlington, Inc., West Chester, Pa.
 Ind—Indestructible Wheel Co., Lebanon, Ind.
 Jon—Jones, Phineas & Co., Newark, N. J.
 Kel—Kelsey Wheel Co., Detroit, Mich.
 MM—Michigan Malleable Iron Co., Detroit, Mich.
 Mot—Motor Wheel Corp., Lansing, Mich.
 Mun—Muncie Wheel Co., Muncie, Ind.
 Nor—Northern Wheel Corp., Alma, Mich.
 Pru—Prudden Wheel Co., Lansing, Mich.
 Roy—Royer Wheel Co., Aurora, Ind.
 Sch—Schwarz Wheel Co., Phila., Pa.
 Smt—Smith Wheel, Inc., Syracuse, N. Y.
 StM—St. Mary's Wheel Co., St. Marys, O.
 Stn—Standard Wheel Co., Terre Haute, Ind.
 Van—Van Wheel Corp., Oneida, N. Y.
 Wal—Walker Axle Co., Chicago, Ill.
 Way—Wayne Wheel Co., Newark, N. Y.
 Whit—Whitcomb Wheel Co., Kenosha, Wis.

Rim Equipment:

Fir—Firestone Steel Products Co., Akron, Ohio.
 Gdy—Goodyear Tire & Rubber Co., Akron, Ohio.
 Hay—Hayes Wheel Co., Jackson, Mich.
 Jax—Jaxon Steel Products Co., Jackson, Mich.
 Kel—Kelsey Wheel Co., Detroit, Mich.
 Mil—Miller Rubber Co., Akron, Ohio.

Battery (Make):

Exi—Electric Storage Battery Co., Phila., Pa.
 Gl—Globe Electric Co., Milwaukee, Wis.
 Gld—Gould Storage Battery Co., New York, N. Y.
 Hob—Hobbs Storage Battery Co., Los Angeles, Cal.
 POL—Prest-O-Lite Co., Inc., Indianapolis, Ind.
 USL—U. S. Light & Heat Corp., Niagara Falls, N. Y.
 Wes—Westinghouse Corp., Niagara Falls, N. Y.
 Wil—Willard Elec. & Mfg. Co., Springfield, Mass.

Valve Arrangement:

D—Head & Side
 H—Overhead
 L—ELL—Head
 S—Sleeve
 T—TEE—Head

Lubrication:

FS—Force and Splash
 F—Force Feed
 S—Splash

Fuel Feed:

G—Gravity
 P—Pressure
 V—Vacuum

Location of Gearset:

A—Amidships
 J—Unit with jackshaft
 R—Rear
 U—Unit with engine

Final Drive:

B—Bevel Gear
 C—Chain
 I—Internal Gear
 P—Spur
 R—Double Reduction
 S—Spiral Bevel
 W—Worm

Rear Axle (Type):

F—Floating
 D—Dead
 1/2—Semi-Floating
 3/4—3/4-Floating

Brake (Location):

A—Rear Wheels entirely
 B—Drive Shaft and Rear Wheels
 C—Front and Rear Wheel

Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

See Preceding Table for Replacement Data. Truck Frame Dimensions Are Included in Same Table
(Where prices are not given it is because we have been unable to get them from authoritative sources)

For full name and address of manufacturer and information regarding complete line see page 52

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS										GEARSET			Front Axle and Model Number	Rear Axle Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS			Chassis Weight (Stripped)							
		Make and Model Number 4 cylinder unless otherwise noted.	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrangement	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Clutch (Make)	Make and Model Number								Location	Speeds	Universal (Make)		Springs (Make)	Final Drive					
													Make and Model Number	Model Number																	
																											Make and Model Number	Model Number			
1000 Pounds																															
Chevrolet, Sup. LD.....	395	Own	3 1/4 x 4	21.7 H	Har	FS	Zen	G	.....	Rm	Rm	Own	Own	Own	U	3	SS	Own	Own	S	Own	Tim 0500	1/2	3.77	12.52	Own	30x3 1/2	30x3 1/2	Hay	Jax	1390 103
Gray.....	420	Own	3 1/2 x 4	21.1 L	Cor	FS	Stee	G	.....	Wes	Wes	DG	Own	Own	U	3	MM	Tim	Tim	B	Tim	0500	1/2	3.9	13.19	Own	30x3 1/2	30x3 1/2	Kel	Kel	1130 100
Overland.....	395	Own	3 1/2 x 4	19.6 L	Cor	FS	Thil	G	.....	AuL	AuL	Own	Own	Own	U	3	Own	Own	Own	B	Own	0500	1/2	4.5	17.68	Own	30x3 1/2	30x3 1/2	Hay	Hay	1550 100
1500 Pounds																															
Commerces 9.....	1300	Cont N	3 1/4 x 5	22.5 L	Lang	FS	Zen	V	.....	Bos	Bj	DG	DG	DG	U	3	UM	Shel	Shel	B	Sala	W1002	3/4	5.73	18.33	Jac	33x5	33x5	Mot	Mot	3100 127
Corbitt 5 Speed Truck.....	1300	H-Sp 30	3 1/2 x 5	19.8 L	McC	FS	Strm	V	.....	Eis	Dy	Covt	Covt	Covt	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
Diagonal 1-76.....	730	Her OX	3 1/2 x 5	25.6 L	GO	FS	Zen	G	.....	NE	NE	Covt	Covt	Covt	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
Dodge Brothers.....	1650	Cont N	3 1/2 x 5 1/2	22.5 L	Chic	FS	Stew	G	.....	Phar	Phar	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
King Zetler.....	1245	Cont N	3 1/2 x 5	19.6 L	Har	FS	Zen	V	.....	Rm	Rm	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
Perfection R-31.....	1970	Cont N	3 1/2 x 5	19.6 L	Har	FS	Zen	V	.....	Rm	Rm	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
Rainier R-31.....	1970	Cont N	3 1/2 x 5	19.6 L	Har	FS	Zen	V	.....	Rm	Rm	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
Ruggles 16.....	2400	H-Sp 30	3 1/2 x 5 1/2	22.5 L	Per	FS	Zen	G	.....	Eis	Eis	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
White 15.....	2400	Ow GK	3 1/2 x 5 1/2	22.5 L	Per	FS	Zen	G	.....	Bos	Bos	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
Yellow Cab. M-22-3.....	1590	Cont V-4	3 1/2 x 5	22.5 L	Lang	FS	Zen	G	.....	Bos	Bos	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	B	Shel	W1002	3/4	5.12	18.58	Ros	33x5	33x5	Mot	Mot	3420 130
1 Ton																															
Acme 20L.....	2200	Cont 8R	3 1/2 x 5 1/2	27.3 L	GO	FS	Zen	V	.....	Bos	Bos	B-Li	B-Li	B-Li	U	3	Bld	Det	Tim	W	Tim	6258	1 1/2	6.25	30	Ros	34x5	34x5	Bim	Bim	3500 136
Autocar F.....	2300	Ow 2	4 1/2 x 5 1/2	18.1 L	Ow	FS	Strm	G	.....	Bos	Bos	Own	Own	Own	U	3	Spic	Det	Own	R	Own	6258	1 1/2	8.3	33.2	Ros	34x5	34x5	Hoo	Hoo	3900 97
Autocar G.....	2300	Ow 2	4 1/2 x 5 1/2	18.1 L	Ow	FS	Strm	G	.....	Bos	Bos	Own	Own	Own	U	3	Spic	Det	Own	R	Own	6258	1 1/2	8.3	33.2	Ros	34x5	34x5	Hoo	Hoo	3900 97
Bessemer G.....	1595	Cont N	3 1/2 x 5	19.6 L	Stn	FS	Strm	V	.....	Bos	B	DG	DG	DG	U	3	Spic	Per	Est	I	Est	1000	1 1/2	6.56	18.8	Lav	35x5	35x5	Sch	Sch	3000 120
Bethlehem KN.....	1595	Ow	3 1/2 x 5	19.6 L	GO	FS	Strm	V	.....	Bos	B	DG	DG	DG	U	3	Spic	Per	Est	I	Est	1000	1 1/2	6.56	18.8	Lav	35x5	35x5	Sch	Sch	3000 120
Bets J-3.....	1850	Wis J-3	4 x 5 1/2	25.6 H	Chic	GO	F	Zen	G	.....	Spl	B-Li	B-Li	B-Li	U	3	M-E	Row	Col	W	Col	6201	1 1/2	5.13	20.5	Gem	33x5	33x5	Fir	Fir	3150 140
Brookway E-2.....	1700	Buda WTU	3 1/2 x 5 1/2	22.4 L	GO	FS	Zen	V	.....	Bos	Bos	Full	Full	Full	U	3	Spic	Stan	Col	S	Col	6200	1 1/2	5.85	23.46	Woh	34x5	34x5	Are	Are	3200 130
Casco Model A.....	495	Buda WTU	3 1/2 x 5 1/2	22.4 L	GO	FS	Zen	V	.....	Bos	Bos	Full	Full	Full	U	3	Spic	Stan	Col	S	Col	6200	1 1/2	5.85	23.46	Woh	34x5	34x5	Are	Are	3200 130
Chevrolet Sup. Util. Exp.....	1600	Buda GBU	4 x 5 1/2	25.6 L	Har	FS	Zen	G	.....	Tim	Tim	B-Li	B-Li	B-Li	U	3	Spic	Shel	Tim	W	Tim	6352	1 1/2	6.2	24.8	Ros	34x5	34x5	Are	Are	3500 135
Concord E.....	1600	Cont N	3 1/2 x 5	22.5 L	McC	FS	Strm	V	.....	Eis	Eis	B-Li	B-Li	B-Li	U	3	Spic	Shel	Shel	W	Shel	W1501	1 1/2	7.8	25.9	Ros	34x5	34x5	Bim	Bim	3730 130
Diehl A.....	1695	Cont N	3 1/2 x 5	19.6 L	Mod	FS	Strm	V	.....	Sim	Sim	B-B	B-B	B-B	U	3	Hart	Mar	Sale	I	Sale	W1501	1 1/2	6.3	25.9	Ros	34x5	34x5	Sch	Sch	2400 115
D-Olt A-1.....	2490	Mid 408	4 x 5 1/2	25.6 H	Mod	FS	Strm	V	.....	Opt	Opt	B-Li	B-Li	B-Li	U	3	Spic	SP	Tim	W	Tim	6250	1 1/2	6.75	22	Ros	35x5	35x5	Day	Day	3400 138
Dorris K-2.....	1700	Buda WTU	3 1/2 x 5 1/2	22.4 L	GO	FS	Zen	V	.....	Bos	Bos	Full	Full	Full	U	3	Spic	Row	Tim	B	Tim	6250	1 1/2	6.75	22	Ros	35x5	35x5	Mun	Mun	2000 0p
Duplex D.....	1700	Buda WTU	3 1/2 x 5 1/2	22.4 L	GO	FS	Zen	V	.....	Bos	Bos	Full	Full	Full	U	3	Spic	Row	Tim	B	Tim	6250	1 1/2	6.75	22	Ros	35x5	35x5	Mun	Mun	2000 0p
Federal R-2.....	370	Cont J-4	3 1/2 x 5	22.5 L	Ow	FS	Zen	G	.....	Eis	Rm	Det	Det	Det	U	3	Pet	Pen	Tim	W	Tim	6250	1 1/2	5.6	18.7	Woh	33x5	33x5	Mot	Mot	3000 132
Ford T.....	1495	Buda WTU	3 1/2 x 5 1/2	22.5 L	Lang	FS	Zen	V	.....	Sim	Sim	Durs	Durs	Durs	U	3	Ow	Ow	Ow	W	Ow	6250	1 1/2	6.1	19.9	Gem	30x3 1/2	32x5 1/2	Dis	Dis	2950 132
Fulton A.....	1590	Buda WTU	3 1/2 x 5 1/2	22.5 L	Liv	FS	Zen	G	.....	Sim	Sim	Durs	Durs	Durs	U	3	Spic	Row	Ow	B	Ow	6250	1 1/2	6.1	19.9	Gem	30x3 1/2	32x5 1/2	Hoo	Hoo	2950 132
Garford 16.....	1875	Buda WTU	3 1/2 x 5 1/2	22.5 L	Chic	FS	Strm	G	.....	AtK	AtK	Ow	Ow	Ow	U	3	Spic	Per	Ow	B	Ow	6250	1 1/2	6.1	19.9	Gem	30x3 1/2	32x5 1/2	Hoo	Hoo	2950 132
Gary W.....	1695	Buda WTU	3 1/2 x 5 1/2	22.5 L	Chic	FS	Zen	G	.....	Pier	Pier	Full	Full	Full	U	3	Spic	Det	Ow	B	Ow	6250	1 1/2	6.1	19.9	Gem	30x3 1/2	32x5 1/2	Hoo	Hoo	2950 132
G.M.C. K-16.....	1695	Buda WTU	3 1/2 x 5 1/2	22.5 L	Chic	FS	Zen	G	.....	Sim	Sim	Ow	Ow	Ow	U	3	Spic	Det	Ow	B	Ow	6250	1 1/2	6.1	19.9	Gem	30x3 1/2	32x5 1/2	Hoo	Hoo	2950 132
G.M.C. 20.....	1695	Buda WTU	3 1/2 x 5 1/2	22.5 L	Chic	FS	Zen	G	.....	Sim	Sim	Ow	Ow	Ow	U	3	Spic	Det	Ow	B	Ow	6250	1 1/2	6.1	19.9	Gem	30x3 1/2	32x5 1/2	Hoo	Hoo	2950 132
Graham Brothers BA.....	1265	Dodge	3 1/2 x 5 1/2	24 L	McC	FS	Stew	G	.....	Tim	Tim	B-Li	B-Li	B-Li	U	3	Spic	Am	Ow	S	Ow	6360	1 1/2	6.28	22.9	Dod	33x5 1/2	34x5	Day	Day	3250 131
Gramm-Pioneer 10-Sp.....	1475	Lycot CT	3 1/2 x 5	22.5 L	Ow	FS	Strm	V	.....	Con	Con	Mun	Mun	Mun	U	3	Ow	Per	Sale	S	Ow	6360	1 1/2	6.28	22.9	Dod	33x5 1/2	34x5	Day	Day	3250 131
Gray.....	575	Ow	3 1/2 x 4	21 L	Cor	FS	Score	G	.....	Wes	Wes	B-Li	B-Li	B-Li	U	3	Sned	Det	Tim	B	Tim	513	1 1/2	6.13	19.2	Ow	30x3 1/2	32x5 1/2	Kel	Kel	2370 129
Hawkeye.....	1550	Buda WTU	3 1/2 x 5 1/2	22.5 L	GC	FS	Zen	G	.....	Eis	Eis	Full	Full	Full	U	3	Bld	Det	Tim	B	Tim	513	1 1/2	6.25	18.75	Ros	34x5	34x5	Day	Day	1510 120
Indiana Highway Exp.....	1450	Buda WTU	3 1/2 x 5 1/2	22.5 L	GC	FS	Zen	G	.....	Eis	Eis	Full	Full	Full	U	3	Bld	Det	Tim	B	Tim	513	1 1/2	6.25	18.75	Ros	34x5	34x5	Day	Day	1510 120
Int'l Speed Truck S.....	1150	Wau BUX	4 x 5	25.6 L	Lang	FS	Zen	G	.....	Bos	Bos	B-Li	B-Li	B-Li	U	3	Pet	Shel	Tim	R	Tim	5511	1 1/2	5.73	18.9	Rav	34x5	34x5	Opt	Opt	3260 136
Kearns H.....	1950	H-Sp 7000	3 1/2 x 5	19.6 L	Chic	FS	Zen	G	.....	Bos	Bos	Full	Full	Full	U	3	Spic	Shel	Col	I	Col	5200-B	1 1/2	5.85	18.2	CAS	32x4 1/2	32x4 1/2	Sch	Sch	2000 116
Kiesel Express.....	1555	Cont 80000	3 1/2 x 5 1/2	24.1 L	Chic	FS	Zen	G	.....	Phar	Phar	B-Li	B-Li	B-Li	U	3	Pick	Mar	Tim	W	Tim	6352	1 1/2	7.2	29.44	Jac	34x5	34x5	Bim	Bim	3750 140
Krebs J-24.....	1685	Wau X	3 1/2 x 5 1/2	22.5 L	McC	FS	Strm	V	.....	Bos	Bos	B-Li	B-Li	B-Li	U	3	Spic	Math	Tim	W	Tim	6250	1 1/2	5.17	18.9	Jac	34x5	34x5	Van	Van	3750 140
Luedinghaus.....	1685	Wau X	3 1/2 x 5 1/2	22.5 L	Ow	FS	Zen	G	.....	Spl	Spl	B-Li	B-Li	B-Li	U	3	Spic	Math	Tim	W	Tim	6250	1 1/2	6.25	21	L	34x5 1/2	34x5 1/2	Van	Van	3250 140

* This symbol in the wheelbase column indicates that more than one wheelbase is furnished

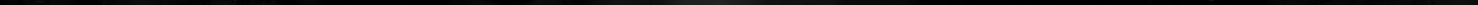
For full name and address of manufacturer and information regarding complete line see page 52

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS										GEARSET		FRONT AXLE		REAR AXLE		Steering Gear (Make)	Total Gear Reduction in High	Total Gear Reduction in Low	Tires, Wheels, Rims	Chassis Weight (Stripped)	Wheelbase																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		Bore and Stroke	N.A.C.C. Horsepower	Valve Arrangement	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)							Front Axle and Model Number	Final Drive	Make and Model Number	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
1½ Ton—Con'd																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Garford 25 B.....	2375	3½ x 5½	22.5	L	Own	Strm	Zen	V	...	Spl	Atk	Own	Own	A	3	Spic	Per	Tim 1452	W	Tim 6460	1½	7.75	34.8	Ros	36x3½	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 154	4000 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2800	Wachusett J.	Cont J4	34x5	22.5	GO	F	Zen	V	Dup	Bos	B-Li	B-Li 35	U	4	Hart	Tim 1452	Tim 6552	36x6	38x6	39x6	40x6	41x6	42x6	43x6	44x6	45x6	46x6	47x6	48x6	49x6	50x6	51x6	52x6	53x6	54x6	55x6	56x6	57x6	58x6	59x6	60x6	61x6	62x6	63x6	64x6	65x6	66x6	67x6	68x6	69x6	70x6	71x6	72x6	73x6	74x6	75x6	76x6	77x6	78x6	79x6	80x6	81x6	82x6	83x6	84x6	85x6	86x6	87x6	88x6	89x6	90x6	91x6	92x6	93x6	94x6	95x6	96x6	97x6	98x6	99x6	100x6	101x6	102x6	103x6	104x6	105x6	106x6	107x6	108x6	109x6	110x6	111x6	112x6	113x6	114x6	115x6	116x6	117x6	118x6	119x6	120x6	121x6	122x6	123x6	124x6	125x6	126x6	127x6	128x6	129x6	130x6	131x6	132x6	133x6	134x6	135x6	136x6	137x6	138x6	139x6	140x6	141x6	142x6	143x6	144x6	145x6	146x6	147x6	148x6	149x6	150x6	151x6	152x6	153x6	154x6	155x6	156x6	157x6	158x6	159x6	160x6	161x6	162x6	163x6	164x6	165x6	166x6	167x6	168x6	169x6	170x6	171x6	172x6	173x6	174x6	175x6	176x6	177x6	178x6	179x6	180x6	181x6	182x6	183x6	184x6	185x6	186x6	187x6	188x6	189x6	190x6	191x6	192x6	193x6	194x6	195x6	196x6	197x6	198x6	199x6	200x6	201x6	202x6	203x6	204x6	205x6	206x6	207x6	208x6	209x6	210x6	211x6	212x6	213x6	214x6	215x6	216x6	217x6	218x6	219x6	220x6	221x6	222x6	223x6	224x6	225x6	226x6	227x6	228x6	229x6	230x6	231x6	232x6	233x6	234x6	235x6	236x6	237x6	238x6	239x6	240x6	241x6	242x6	243x6	244x6	245x6	246x6	247x6	248x6	249x6	250x6	251x6	252x6	253x6	254x6	255x6	256x6	257x6	258x6	259x6	260x6	261x6	262x6	263x6	264x6	265x6	266x6	267x6	268x6	269x6	270x6	271x6	272x6	273x6	274x6	275x6	276x6	277x6	278x6	279x6	280x6	281x6	282x6	283x6	284x6	285x6	286x6	287x6	288x6	289x6	290x6	291x6	292x6	293x6	294x6	295x6	296x6	297x6	298x6	299x6	300x6	301x6	302x6	303x6	304x6	305x6	306x6	307x6	308x6	309x6	310x6	311x6	312x6	313x6	314x6	315x6	316x6	317x6	318x6	319x6	320x6	321x6	322x6	323x6	324x6	325x6	326x6	327x6	328x6	329x6	330x6	331x6	332x6	333x6	334x6	335x6	336x6	337x6	338x6	339x6	340x6	341x6	342x6	343x6	344x6	345x6	346x6	347x6	348x6	349x6	350x6	351x6	352x6	353x6	354x6	355x6	356x6	357x6	358x6	359x6	360x6	361x6	362x6	363x6	364x6	365x6	366x6	367x6	368x6	369x6	370x6	371x6	372x6	373x6	374x6	375x6	376x6	377x6	378x6	379x6	380x6	381x6	382x6	383x6	384x6	385x6	386x6	387x6	388x6	389x6	390x6	391x6	392x6	393x6	394x6	395x6	396x6	397x6	398x6	399x6	400x6	401x6	402x6	403x6	404x6	405x6	406x6	407x6	408x6	409x6	410x6	411x6	412x6	413x6	414x6	415x6	416x6	417x6	418x6	419x6	420x6	421x6	422x6	423x6	424x6	425x6	426x6	427x6	428x6	429x6	430x6	431x6	432x6	433x6	434x6	435x6	436x6	437x6	438x6	439x6	440x6	441x6	442x6	443x6	444x6	445x6	446x6	447x6	448x6	449x6	450x6	451x6	452x6	453x6	454x6	455x6	456x6	457x6	458x6	459x6	460x6	461x6	462x6	463x6	464x6	465x6	466x6	467x6	468x6	469x6	470x6	471x6	472x6	473x6	474x6	475x6	476x6	477x6	478x6	479x6	480x6	481x6	482x6	483x6	484x6	485x6	486x6	487x6	488x6	489x6	490x6	491x6	492x6	493x6	494x6	495x6	496x6	497x6	498x6	499x6	500x6	501x6	502x6	503x6	504x6	505x6	506x6	507x6	508x6	509x6	510x6	511x6	512x6	513x6	514x6	515x6	516x6	517x6	518x6	519x6	520x6	521x6	522x6	523x6	524x6	525x6	526x6	527x6	528x6	529x6	530x6	531x6	532x6	533x6	534x6	535x6	536x6	537x6	538x6	539x6	540x6	541x6	542x6	543x6	544x6	545x6	546x6	547x6	548x6	549x6	550x6	551x6	552x6	553x6	554x6	555x6	556x6	557x6	558x6	559x6	560x6	561x6	562x6	563x6	564x6	565x6	566x6	567x6	568x6	569x6	570x6	571x6	572x6	573x6	574x6	575x6	576x6	577x6	578x6	579x6	580x6	581x6	582x6	583x6	584x6	585x6	586x6	587x6	588x6	589x6	590x6	591x6	592x6	593x6	594x6	595x6	596x6	597x6	598x6	599x6	600x6	601x6	602x6	603x6	604x6	605x6	606x6	607x6	608x6	609x6	610x6	611x6	612x6	613x6	614x6	615x6	616x6	617x6	618x6	619x6	620x6	621x6	622x6	623x6	624x6	625x6	626x6	627x6	628x6	629x6	630x6	631x6	632x6	633x6	634x6	635x6	636x6	637x6	638x6	639x6	640x6	641x6	642x6	643x6	644x6	645x6	646x6	647x6	648x6	649x6	650x6	651x6	652x6	653x6	654x6	655x6	656x6	657x6	658x6	659x6	660x6	661x6	662x6	663x6	664x6	665x6	666x6	667x6	668x6	669x6	670x6	671x6	672x6	673x6	674x6	675x6	676x6	677x6	678x6	679x6	680x6	681x6	682x6	683x6	684x6	685x6	686x6	687x6	688x6	689x6	690x6	691x6	692x6	693x6	694x6	695x6	696x6	697x6	698x6	699x6	700x6	701x6	702x6	703x6	704x6	705x6	706x6	707x6	708x6	709x6	710x6	711x6	712x6	713x6	714x6	715x6	716x6	717x6	718x6	719x6	720x6	721x6	722x6	723x6	724x6	725x6	726x6	727x6	728x6	729x6	730x6	731x6	732x6	733x6	734x6	735x6	736x6	737x6	738x6	739x6	740x6	741x6	742x6	743x6	744x6	745x6	746x6	747x6	748x6	749x6	750x6	751x6	752x6	753x6	754x6	755x6	756x6	757x6	758x6	759x6	760x6	761x6	762x6	763x6	764x6	765x6	766x6	767x6	768x6	769x6	770x6	771x6	772x6	773x6	774x6	775x6	776x6	777x6	778x6	779x6	780x6	781x6	782x6	783x6	784x6	785x6	786x6	787x6	788x6	789x6	790x6	791x6	792x6	793x6	794x6	795x6	796x6	797x6	798x6	799x6	800x6	801x6	802x6	803x6	804x6	805x6	806x6	807x6	808x6	809x6	810x6	811x6	812x6	813x6	814x6	815x6	816x6	817x6	818x6	819x6	820x6	821x6	822x6	823x6	824x6	825x6	826x6	827x6	828x6	829x6	830x6	831x6	832x6	833x6	834x6	835x6	836x6	837x6	838x6	839x6	840x6	841x6	842x6	843x6	844x6	845x6	846x6	847x6	848x6	849x6	850x6	851x6	852x6	853x6	854x6	855x6	856x6	857x6	858x6	859x6	860x6	861x6	862x6	863x6	864x6	865x6	866x6	867x6	868x6	869x6	870x6	871x6	872x6	873x6	874x6	875x6	876x6	877x6	878x6	879x6	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For full name and address of manufacturer and information regarding complete line see page 52

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS										GEARSET			FRONT AXLE		REAR AXLE		TIRES, WHEELS, RIMS			Chassis Weight (Stripped)	Wheelbase														
		Make and Model Number 4 cylinder unless otherwise noted.	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrangement	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	Make and Model Number	Location	Universal (Make)	Springs (Make)	Model Number	Final Drive	Make and Model Number	Type			Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	*Pneumatic †Dual ‡Solid		Wheels (Make)	Rim Equipment							
																											Front	Rear									
2 Ton—Con'd																																					
Wachusett K.	3200	Cont K-4	4 1/2x5 1/2	27.2	GO	FS	Zen	V	Wau	Bos	Bos	B-Li	B-Li 35	U	Hart	Tim 1520	W	Tim 6460	F 1/2	7.75	41.5	Ros	36x4	36x7	Sm	4800	154										
White 20.	3250	Own GK	3 3/4x5 1/2	22.5	EM	FS	Zen	GG	Wau	Bos	NE	B-Li	B-Li 30	A	Ther	Shel W-103	R	Shel W-103	3/4	9.25	32.1	Own	36x6	36x7	Bim	4815	168										
Wichita M.	2400	Wau BK	3 3/4x5 1/2	22.5	EM	FS	Zen	GG	Wau	Bos	NE	B-Li	B-Li 35	A	Ther	Shel W-103	R	Shel W-103	3/4	9.25	32.1	Own	36x6	36x7	Bim	4400	144										
Wisconsin.	2700	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	G	Pier	Eis	B-Li	B-Li 35	U	Spic	Det	Tim 1520	W	Tim 6460	3/4	8.26	41.5	Ros	36x7	36x7	Are	4600	140									
Witt-Will P.	2650	Cont C-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	G	Pier	Eis	B-Li	B-Li 35	U	Spic	Det	Tim 1520	W	Tim 6460	3/4	8.26	41.5	Ros	36x7	36x7	Are	4600	168									
2 1/2 Ton																																					
Acme 60.	3950	Cont K-4	4 1/2x5 1/2	27.2	GO	FS	Zen	V	Dup	Eis	Del	B-B	Cott RU	U	Bld	Tim 1540B	W	Tim 6560	F 1/2	9.25	48.10	Ros	36x4	36x7	Bim	4830	152										
American-HWB	3150	Own HTU	4 1/2x5 1/2	28.9	L	Bus	FS	Zen	GG	Wau	Bos	B-Li	B-Li 50	U	Spic	Math	Tim 1540B	W	Tim 6560	F 1/2	9.25	48.10	Ros	36x4	36x7	Day	5000	Op									
Armstrong-HWC	3150	Cont C-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Wau	Bos	B-Li	B-Li 50	U	Spic	Math	Tim 1540B	W	Tim 6560	F 1/2	9.25	48.10	Ros	36x4	36x7	Day	5000	Op									
Atterbury 22C Sd.	3375	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	V	Pier	Eis	B-Li	B-Li 51	A	Spic	SP	Tim 1542B	W	Tim 6560	F 1/2	9.25	48.10	Ros	36x4	36x7	Are	5670	166									
Atterbury 22C LWB.	3475	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	V	Pier	Eis	B-Li	B-Li 51	A	Spic	SP	Tim 1542B	W	Tim 6560	F 1/2	9.25	48.10	Ros	36x4	36x7	Are	5670	166									
Autocar K.	3450	Own	4 1/2x5 1/2	25.6	L	Own	S	Strm	G	Phar	Bos	Own	Own	Own	4	Spic	Del	Own	Own	Own	F	7.72	46.3	Ros	36x4	36x8	Hoo	5870	114								
Autocar L.	3550	Own	4 1/2x5 1/2	25.6	L	Own	S	Strm	G	Phar	Bos	Own	Own	Own	4	Spic	Del	Own	Own	Own	F	7.72	46.3	Ros	36x4	36x8	Hoo	5870	114								
Available JH2 1/2.	3160	Her O	4 x5	25.6	L	Chic	FS	Zen	V	Pier	Bos	B-Li	B-Li 35	U	M-E	Tim	Tim 6560	W	Tim 6560	F 1/2	8.5	40.3	Ros	36x4	36x8	Sch	5200	152									
Bessemer 12.	2985	Hin HA 500	4 1/2x5 1/2	28.9	L	Stn	FS	Zen	GG	Pier	Bos	B-B	B-Li 35	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Beta D-3	2975	Cont D-3	4 1/2x5 1/2	27.2	L	Chic	FS	Zen	GG	Pier	Bos	B-Li	B-Li 35	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Brinton D.	2975	Cont K-4	4 1/2x5 1/2	27.2	L	Bus	FS	Zen	GG	Pier	Bos	B-Li	B-Li 35	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Brookway K.	2450	Her O	4 x5 1/2	25.6	L	Bre	FS	Zen	GG	Pier	Bos	B-Li	B-Li 35	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Columbia G.	2450	Hin 400	4 1/2x5 1/2	27.2	L	Own	FS	Zen	V	Pier	Bos	B-Li	B-Li 35	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Clydeade 8.	2450	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	V	Pier	Bos	B-Li	B-Li 35	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Commerce 25B.	3000	Buda EBU	4 1/2x5 1/2	28.9	L	McC	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Concord J.	3000	Cont K-4	4 1/2x5 1/2	27.2	L	Bus	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Day-Elder DN.	3250	Hin 1400	4 1/2x5 1/2	27.2	L	GO	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Diamond C.	3250	Cont K-4	4 1/2x5 1/2	27.2	L	GO	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
D-Olt C.	2850	Mid 402	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Duplex AC.	2850	Hin 400	4 1/2x5 1/2	27.2	L	Mod	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Duplex AB.	2850	Hin 400	4 1/2x5 1/2	27.2	L	Mod	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Federal U-2.	3250	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Garford 70 H.	3250	Buda HTU	4 1/2x5 1/2	28.9	L	Chic	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
Gary J.	3250	Own	4 1/2x5 1/2	25.6	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41A.	3175	Buda EBU	4 1/2x5 1/2	28.9	L	McC	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41B.	3175	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41C.	3175	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41D.	3175	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41E.	3175	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41F.	3175	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5	Ros	36x4	36x8	Sch	4800	158										
G.M.C. K-41G.	3175	Cont K-4	4 1/2x5 1/2	27.2	L	Own	FS	Zen	GG	Pier	Bos	B-Li	B-Li 50	U	Bld	Shul 510	R	LM 7250	1/2	7.75	41.5																



[illegible]

ELECTRIC COMMERCIAL CARS

Name and Model Number	Total Weight Resting on Four Tires	Chassis Weight Exclusive of Battery	Minimum Load Capacity	Maximum Load Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Autocar E 1F.....					2400				G-E	G-E		R	Own	Row	34x4	34x5	Ross	107	60
Autocar E 2F.....					2800				G-E	G-E		R	Own	Row	34x5	34x6	Ross	120	60
Autocar E 2H.....					3200				G-E	G-E		R	Own	Row	34x5	36x8	Ross	128	60
Autocar E 4Y.....					4000				G-E	G-E		R	Own	Row	34x6	36x8+	Ross	138	60
Autocar E 5M.....					4300				G-E	G-E		R	Own	Row	36x7	36x7+	Ross	138	60
CT-D-1.....	5400	2200				14	A	55	G-E	Own	4	Own	Flot	Shel	36x3	36x3½	W	100	69
CT-B-1.5.....	6100	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	91½	65
CT-D-1.5.....	6200	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	116	71
CT-B-2.....	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	101	66
CT-D-2.....	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	124	70
CT-B-4.....	11750	4000				12	A	50	G-E	Own	4	Own	Flot	Shel	36x4	36x4+	W	116	68
CT-C-6.....	14400	4300				10	A	45	G-E	Own	4	I	D	Shel	36x4	36x4+	W	122	70
CT-C-7.....	16900	5000				10	A	45	G-E	Own	4	I	D	Shel	36x5	36x5+	W	126	65
CT-A-7.....	17700	5800				11	A	45	G-E	Own	4	I	D	Shel	36x6	36x4+	W	122	60
CT-A-10.....	22250	6500				10	A	45	G-E	Own	4	I	D	Shel	36x7	36x5+	W	132	59
Kelland AT.....	5850	1950	1000	1500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BT.....	6950	2050	1500	2000		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CT.....	7050	2150	2000	2500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Kelland AH.....	6400	2500	1000	1500		15	A	45	G-E	G-E	4	C	D	Mer	36x3	36x3	Hin	106	60
Kelland BH.....	7500	2600	1500	2000		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x3½	Hin	106	60
Kelland CH.....	7600	2700	2000	2500		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x4	Hin	106	60
Kelland ATS.....	6100	2200	1000	1500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BTS.....	7200	2300	1500	2000		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CTS.....	7300	2400	2000	2500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	114	60
Lansden Century.....	1700		1250	1600		15	S	50	G-E	Own	4	R	Flot	SP	32x4½	32x4½	Lav	108	50
Lansden Century.....	1950		2000	1850		15	S	50	G-E	Own	4	R	Flot	SP	33x5	33x5	Lav	112	50
Lansden Marathon.....	2950		2000	1850		12	A	50	G-E	Own	4	C	D	SP	36x3½	36x4		108	60
Lansden Marathon.....	4400		4000	2250		11	A	50	G-E	Own	4	C	D	SP	36x4	36x3½+		120	60
Lansden ME.....	5700		7000	2950		10	A	45	G-E	Own	4	C	D	SP	36x5	36x5+		133	60
Lansden MF.....	7500		10000	3350		9	A	40	G-E	Own	4	C	D	SP	36x6	36x6+		146	60
O. B. A.....				2175		14			G-E	Own		C	D		36x3½	36x4	Own	103	
O. B. B.....				2650		13			G-E	Own		C	D		36x4	36x3½+	Own	107	
O. B. C.....				3750		11			G-E	Own		C	D		36x5	36x4	Own	135	
O. B. D.....				3950		10			G-E	Own		C	D		36x6	36x5	Own	143	
Steinmets 10.....	2000					16	H&S	52	Diehl	Own	4	R	Russ	Shel	32x4½	32x4½	Lav	106	60
Steinmets 15.....	2300					16	H&S	55	Diehl	Own	4	R	Russ	Shel	33x5	33x5	Lav	114	60
Walker 12.....	1900		1000			15		50	G-E	West	4		Tim	Det	32x3	32x3½	Ross	104	66
Walker 15.....	2600		1500			15		50	West	West	5	Own	Own	Math	34x3	36x3½	Ross	94	66
Walker 22.....	2800		2000			14		50	West	West	5	Own	Own	Math	34x3½	36x4	Ross	101	66
Walker 42.....	3800		4000			13		50	West	West	5	Own	Own	Math	36x4	36x6	Ross	114	66
Walker P.....	5600		7000			11		40	West	West	5	Own	Own	Math	36x5	38x5+	Ross	131	66
Walker N.....	6400		10000			10		40	West	West	5	Own	Own	Math	36x6	38x6+	Ross	141	66
Walter HD.....	6800	2300	2000	2200		16	A	60	Diehl	G-E	5	B			32x3½	32x4	Ross	98	60
Walter EN.....	13200	4400	5000	3100		15	A	50	G-E	G-E	5	Own	D		36x4	36x7	Gem	114	60
Walter EL.....	16800	5000	7000	3700		13½	A	50	G-E	G-E	5	Own	D		36x5	36x4	Gem	132	60
Walter ES.....	23600	7200	11000	4500		12	A	50	G-E	G-E	5	Own	D		36x6	40x6	Ross	150	70
Walter ER.....	28400	7500	15000	4800		11	A	50	G-E	G-E	5	Own	D		36x7	40x7	Ross	150	70
Ward A211.....	4500	1650	550	1150		15	S	75	G-E	Own	4	W	Shel	Shel	32x4*	33x4½*	Own	88	56
Ward B-222.....	6000	2300	800	1700		14	S	84	G-E	Own	4	W	Shel	Shel	32x3½*	32x4*	Own	91	62
Ward C-211.....	8000	2670	1650	2850		13	S	65	G-E	Own	4	W	Shel	Shel	32x3½*	34x5*	Own	96	64
Ward E-211.....	12000	3570	4500	5400		12½	S	56½	G-E	Own	4	W	Shel	Shel	34x4*	36x6*	Own	108	65
Ward E-111.....	12000	4170	4000	5000		12½	S	45	G-E	G-E	4	W	Shel	Shel	34x4*	36x6*	Own	108	65
Ward G-111.....	16000	5200	5850	7050		11	A	44	G-E	G-E	5	W	Shel	Shel	36x5*	36x8*	Own	120	68
Ward J-111.....	22500	7350	8850	10500		10	A	39½	G-E	G-E	5	W	Shel	Shel	36x6*	36x10*	Own	132	70
Ward M-111.....	31000	9600	13500	15750		9	A	36	G-E	G-E	5	W	Shel	Shel	36x7*	40x14*	Own	146	71

NOTE: Battery Equipment in all above makes is at the option of the purchaser. Battery Location Abbreviations: A—amidships; H—under hood; and S—under seat.

Superior Steel Products Organized at Monaca

M. P. Simpson, William Elmes and F. H. Guppy, until recently connected with the Moltrup Steel Products Co. and formerly with the Standard Gauge Steel Co., both of Beaver Falls, Pa., have organized the Superior Steel Products Co., which will be located at Monaca, Pa. The new company has purchased a site about 800 ft. in length adjoining the New York Central lines and the first unit of the plant will be a building 300x60. The company will manufacture cold finished steel in standard and special shapes, screw steel shafting and polished rods; round, hexagon, flat and square cold drawn steel bars, finished steel plates and other steel products.

The company will be capitalized at \$100,000 and the officers will be: M. P. Simpson president, William Elmes vice-president, Homer H. Swaney treasurer, and F. H. Guppy secretary.

Fuel Specifications Adopted by U. S. Government

Standard specifications for motor gasoline, aviation gasoline, kerosene and other fuel oils and a considerable variety of lubricants, have at last officially been adopted by the United States Government and beginning June 18, 1924, it becomes mandatory for all government departments and independent establishments of the Federal government to put into effect these standards.

The standards were worked out by Technical Committee on Lubricants and Liquid Fuels, in co-operation with the Society of Automotive Engineers, American Society of Mechanical Engineers, American Society of Testing Materials and the National Petroleum Marketers' Associations.

Copies, giving in detail the specifications, may be purchased from the Superintendent of Documents, Government Printing Office, Washington, for 15 cents.

Would Place Motor Carriers on Public Utilities Basis

The Motor Carriers' Association, representing the 677 operators of motor stage and motor truck lines in the State of California, is circulating petitions to have submitted to the people at the fall election a measure to be known officially as the "Taxation of highway transportation companies amendment" to the State constitution. The amendment proposes to put the motor carriers on the same taxation basis, with reference to the State, as the other public utilities. It will establish and maintain the present rate at which motor carriers are taxed—4 per cent—until that rate is changed in the future by a two-thirds vote of the two houses of the State Legislature.

As it is now, this rate may be changed merely by a majority vote and the carriers feel that it is too easy to change the taxation rate, making them liable to be taxed out of existence by a hostile Legislature.

DETAILED MOTOR

These Tables Consist Only of Specifications Received Directly From the Manufacturer. Every Commercial Chassis or Those Recom

Line Number	TRADE NAME AND NUMBER	Capacity Seats	Chassis Price	UNLOADED WEIGHT (In Pounds)			GENERAL DIMENSIONS							ENGINE DETAILS										NORMAL SPEED M.P.H.	
				Chassis Only	Chassis and Body	Recommended Body Weight	Wheelbase	Tread, Front	Tread, Rear	Frame Floor Height	Turning Radius	Over-All Length	Over-All Width	Clearance from Ground	Make and Model Number	Bore and Stroke	Horsepower	Valve Arrang'mt	Fuel Feed	Lubrication	Carburetor (Make)	Radiator (Make)	Ignition System	High	Low
1	Aeae K.	30	6900	9900	3000	200	58 1/2	74	27	38	312	90	5	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Own	Eis	30	5.7		
2	Bethlehem KN	16	1695	2650	800	125	56	56	...	26	175	64 1/2	10	Own	3 1/2 x 5	19.6	L	V F F	Zen	GO	Bos	35	...		
3	Bethlehem GN	25	2495	4100	1200	138	56	57 1/2	...	25	208 1/2	66 1/2	9	Own	4 x 5 1/2	25.6	L	V F F	Zen	GO	Bos	25	...		
4	Bethlehem HN	35	3295	5250	1500	145	56	59 1/2	...	26	226 1/2	70	10	Own	4 x 5 1/2	25.6	L	V F F	Zen	GO	Bos	25	...		
5	Brinton	25	3400	...	...	Op	58	58	36	30	Op	...	12	Cont	4 1/2 x 5 1/2	32.4	L	V G F F	Strm	Chic	Bos	...	...
6	Brookway	25	6400	9280	2880	185	66 1/2	71	27 1/2	31 1/2	295 1/2	84	10	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	GO	Bos	25	...		
7	Brookway	30	6400	9580	3180	197	66 1/2	71	27 1/2	31 1/2	324 1/2	84	10	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	GO	Bos	25	...		
8	Clinton	30	4075	5925	8700	2775	184	58 1/2	58 1/2	30	37	270	75 1/2	9 1/2	Buda EBU	4 1/2 x 5 1/2	28.9	L	V F F	Zen	Own	Bos	30	...	
9	Commerce 25	24	5400	9400	4000	198	56	56	33 1/2	33	250	...	9	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Lng	Bos	35	...		
10	Commerce 14	17	4200	...	...	160	56	56	30	27	228	81	9	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Lng	Bos	35	...
11	Commerce 20	14	4300	7300	7300	189	56	56	30	27	231	74	9	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Lng	Bos	35	...		
12	Day-Elder 20	20	5200	2500	168	56	58	32	30	237	70 1/2	11	Cont K4	4 1/2 x 5 1/2	27.2	L	V F F	Zen	Bus	Eis	35	...	
13	Day-Elder 25	25	5600	3000	180	58	58 1/2	32	30	260	75 1/2	11	Buda EBU	4 1/2 x 5 1/2	28.9	L	V F F	Zen	Bus	Eis	35	...	
14	Day-Elder 30	30	6000	3500	192	68 1/2	74	25	27	271 1/2	90	6 1/2	Cont 6T	3 1/2 x 5	31.5	L	V F F	Zen	Bus	Eis	35	...	
15	Defiance GL-3	19	3200	4700	1200	140	56	56	28	21	210	84	8	Cont 8 R	3 1/2 x 4 1/2	27.3	L	V F F	Zen	Chic	Bos	30	...		
16	Denby 216	30	6860	...	...	216	70	70	22	73	287	82	9 1/2	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Lng	Bos	47	...
17	Fageol Inter City	22	...	8700	...	218	70	70	21	38	306	84	7 1/2	HS 50	4 1/2 x 5 1/2	28.9	H	V F F	Zen	Lng	Del	35	...		
18	Fageol Street Car	29	...	9600	...	218	70	76 1/2	20	38	312	89	7 1/2	HS 50	4 1/2 x 5 1/2	28.9	H	V F F	Zen	Lng	Del	30	...		
19	Federal	18	4200	...	1800	160	56	59 1/2	28	28	245	...	10	Cont 6M	3 1/2 x 4 1/2	27.3	L	V F F	Zen	Lng	Eis	35	...		
20	Federal	25	5450	...	2500	190	60	60	30	28	266 1/2	...	10	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Mod	Eis	35	...		
21	Fifth Avenue J.	29	5660	8235	2575	172	67 1/2	71 1/2	32	29 1/2	277	87 1/2	7	Yellow	4 x 6	25.6	S	V F F	Zen	Own	Eis	30	7.5		
22	For.	...	...	...	...	123	56	56	...	30	295	91	7	Buda YBU	4 1/2 x 6	32.4	L	V F F	Strm	Own	Spl	35	...
23	Garford 51D	29	4350	6500	9900	187	68	75 1/2	28 1/2	30	295	91	7 1/2	Buda EBU	4 1/2 x 5 1/2	28.9	L	V F F	Strm	Own	Spl	35	...		
24	Garford 726	25	3750	4800	7800	3000	168	56	65 1/2	32	30	236	78 1/2	7 1/2	Dodge	3 1/2 x 4 1/2	24.1	L	V S	Stew	McC	NE	25	...	
25	Graham CA	16	1325	2910	4800	1800	140	56	56	34	263 1/2	247	77	9 1/2	Own 30	4 1/2 x 5 1/2	27.2	L	V F F	Zen	GO	Bos	25	...	
26	Guider 30	30	4500	5600	8800	3000	191	64	70	26	70	300	83	11	Own 38	4 1/2 x 5 1/2	27.2	L	V F F	Strm	McC	Eis	23	...	
27	Indiana 20	22	5300	8900	3600	174	60	68	35	29	252 1/2	89 1/2	9 1/2	Own 38	4 1/2 x 5 1/2	27.2	L	V F F	Strm	McC	Eis	23	...		
28	Indiana 25	26	5850	9950	4100	192	60	68	35	32	279 1/2	89 1/2	9 1/2	Own 38	4 1/2 x 5 1/2	27.2	L	V F F	Strm	McC	Eis	23	...		
29	International S.	14	2750	3500	750	124	56	56	...	20	...	...	...	Lyc KB	3 1/2 x 5	19.6	L	G F S	Ens	Lng	Con	25	...
30	Jumbo	25	6000	8500	2800	204	60	72	27	...	260	84	8	Buda EBU	4 1/2 x 5 1/2	28.9	L	V F F	Strm	GO	Eis	25	...		
31	Kissel	18	5200	7780	2400	202	64 1/2	66	24	...	252	76	8	Own 4-36	4 1/2 x 5 1/2	28.9	L	V S	Strm	Spar	Bos	40	...		
32	Larrabee X 2	14	3350	4750	...	155	56	56	29	28	216	70	11	Cont 8R	3 1/2 x 4 1/2	27.3	L	V F F	Zen	Fed	Bos	40	...		
33	Larrabee XJ2	21	4300	6100	...	168	56	57	31	36	250	90	9	Cont 8R	3 1/2 x 4 1/2	27.3	L	V F F	Zen	Fed	Bos	30	...		
34	Larrabee XH3	21	4600	6700	...	186	62	62	26	34	250	90	9	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Fed	Bos	35	...		
35	Luedinghaus	...	4400	5600	1200	170	...	58	44	...	...	...	11 1/2	...	4 1/2 x 5 1/2	28.9	L	G S	Sheb	Brm	Spl	20	...
36	Mack AB	25	4435	6075	9075	3000	195	58 1/2	60 1/2	25 1/2	37 1/2	300	88	6 1/2	Own	4 1/2 x 5	28.9	L	V F S	Zen	Own	Spl	33	...	
37	Mason	21	1395	3100	5400	2300	150	56	56	30	...	246	85	10	Her O	4 x 5	25.6	L	G F F	Zen	Fed	AuL	35	...	
38	Master DDB	30	6000	9500	3500	194	59	59	26	33 1/2	...	...	...	Buda EBU	4 1/2 x 5 1/2	28.9	L	V F S	Zen	Chic	Eis	25	...
39	Menominee DB	25	5900	9100	3200	186	68	73	26	30	256	86	10	Wis TAU	4 x 6	25.6	L	V F F	Zen	Own	...	...	...
40	Moreland RC	16	2280	3850	5850	2000	180	56	57 1/2	23 1/2	...	...	...	Her O	4 x 5	25.6	L	V F F	Zen	Own	Spl	25	...
41	Moreland EC	20	3780	4590	7590	3000	178	61	58	24 1/2	...	...	...	Cont K4	4 1/2 x 5 1/2	27.3	L	V F F	Strm	Own	Spl	25	...
42	Moreland AC	25	4700	5660	9160	3500	187	68	69	25 1/2	...	...	...	Cont L4	4 1/2 x 5 1/2	32.5	L	V F F	Strm	Own	Spl	25	...
43	Parker B 23 B	16	1400	2700	4600	1900	131	58	58	30	21	204	66	10	Buda WTU	3 1/2 x 5 1/2	22.5	L	V F F	Zen	Own	Wes	35	...	
44	Parker E 24 B	18	2500	3600	5800	2200	150	58	58	28	25	218	66	10	Wis SU	4 x 5	25.6	H	V F F	Strm	Own	Wes	40	...	
45	Perfection CB	24	4400	5800	8900	3000	227	68 1/2	74 1/2	25 1/2	39	275	87	11	Cont 6B	3 1/2 x 5	33.7	L	V F F	Zen	Mod	Eis	35	...	
46	Phila. Motor Coach P	65	6500	8750	14650	5900	216	72	75	20 1/2	25	333 1/2	90	8	Own 6 cyl.	4 x 6	38.4	H	V F F	Zen	GO	NE	25	...	
47	Pierce Arrow Z	25	4600	6000	...	196	68	75 1/2	28	37 1/2	282	89 1/2	8	Own	4 x 5 1/2	38	T	P F F	Own	...	Del	50	...		
48	Pierce Arrow Z	30	4750	6400	...	220	68	75 1/2	28	40	303	89 1/2	8	Own	4 x 5 1/2	38	T	P F F	Own	...	Del	50	...		
49	Reo F	...	1185	2705	3360	650	128	56	56	34	22 1/2	190	66	10 1/2	Own F	4 1/2 x 4 1/2	27.3	F	G F S	John	Own	NE	45	...	
50	Reo W	21	...	...	...	176	56	57	22	...	...	...	...	Own *	3 1/2 x 5	24.3	H	V F S	...	...	...	...	...
51	Ruggles Chanticleer	16	3000	5000	...	150	56	56	28	27	206	73	10 1/2	Her O	4 x 5	25.6	L	V F F	Strm	Per	Rm	35	...		
52	Selden	...	7200	10200	3000	195	68	74	29 1/2	33	309	91	7	Cont L4	4 1/2 x 5 1/2	32.4	L	V F F	Zen	Lng	Eis	25	...		
53	Selden	...	7200	10200	3000	195	68	74	29 1/2	33	309	91	7	Cont 6B	3 1/2 x 5	33.8	L	V F F	Zen	Lng	Eis	25	...		
54	Service 61B	30	5850	...	...	192	58	66	30	24	276 1/2	80	8 1/2	Buda EBU	4 1/2 x 5 1/2	43.4	L	V F F	Strm	McC	Eis	25	...
55	Service 25B	20	3650	...	...	159	56	57 1/2	28	18	221	65 1/2	8	Buda WTU	3 1/2 x 5 1/2	33.8	L	V F F	Opt	Lng	Rm	35	...
56	Sterling GB1	21	4050	4800	7000	2200	156	56	58	29 1/2	35	234	70 1/2	10	Own	4 x									

Car Manufacturer in the Country Was Solicited and the Jobs Listed Are Either Specially Designed Bus
 mended for This Service

See Abbreviation Key on page 39.

The court's recent decision brings all motor truck license fees back to last year's rate and knocks out an increase of 50 per cent on 25 to 30 hp. and 300 per cent on over 30 hp. trucks.

Manufacturers and Models Included in Specifications on Preceding Pages

Also Manufacturers of Buses as Listed in the Bus Table

Truck Manufacturers Who Distribute Nationally

Note: This grouping of the manufacturers has been made from the best information at hand. Manufacturers are invited to furnish us with further information in relation to their distribution which will enable us to make this grouping as correct as possible.

Acme—1, 2, 3, 3½, 4½, 6¼—Acme Motor Truck Co., Cadillac, Mich.
 American-LaFrance—2½, 3½, 5—American-LaFrance Fire Engine Co., Inc., Elmira, N. Y.
 Armleder—1, 1½, 2½, 3½—O. Armleder Motor Truck Co., Cincinnati, Ohio.
 Atterbury—1½, 2½, 3½, 5—Atterbury Motor Car Co., Buffalo, N. Y.
 Autocar—1, 1½, 1½, 2, 2½, 3, 4, 5 to 7—Autocar Co., Ardmore, Pa.
 Bessemer—1, 1½, 2½, 4—Bessemer Motor Truck Co., Grove City, Pa.
 Bethlehem—1, 2, 3—Bethlehem Motors Corp., Allentown, Pa.
 Brockway—¾, 1½, 2½, 3½, 5—Brockway Motor Truck Co., Cortland, N. Y.
 C. T.—1, 1½, 2, 3½, 5—Commercial Truck Co., Philadelphia, Pa.
 Chevrolet—½, 1—Chevrolet Motor Truck Co. of Mich., Flint, Mich.
 Clydesdale—1½, 2½, 3½, 5, 7—Clydesdale Motor Truck Co., Clyde, Ohio.
 Commerce—¾, 1½, 2½—Commerce Motor Truck Co., Ypsilanti, Mich.
 Day-Elder—1, 1½, 2, 2½, 3½, 5—Day-Elder Motors Corp., Newark, N. J.
 Defiance—1½, 1½, 2, 3—Defiance Motor Truck Co., Defiance, Ohio.
 Diamond T—¾, 1½, 1½, 2½, 3½, 5—Diamond T Motor Car Co., Chicago, Ill.
 Dodge—¾—Dodge Bros., Detroit, Mich.
 Duplex—1, 1½, 2, 3½—Duplex Truck Co., Lansing, Mich.
 F. W. D.—3—Four-Wheel Drive Auto Co., Clintonville, Wis.
 Fageol—2, 3, 4, 5—Fageol Motors Co., Oakland, Cal.
 Federal—¾, 1, 1½, 2, 3½, 5, T.T.—Federal Motor Truck Co., Detroit, Mich.
 Fifth Avenue—Fifth Avenue Coach Co., New York City.
 Ford—1—Ford Motor Co., Highland Park, Mich.
 G. M. C.—1, 2½, 3½, 5—General Motors Truck Co., Pontiac, Mich.
 Garford—1, 1½, 2½, 4, 5, 7½—Garford Motor Truck Co., Lima, Ohio.
 Gary—1, 2, 2½, 3½, 5—Gary Motor Corp., Gary, Ind.
 Graham—1, 1½—Graham Brothers, Evansville, Ind.
 Gramm-Bernstein—1, 1½, 1½, 2, 2½, 3½, 4, 5—Gramm-Bernstein Motor Truck Co., Lima, Ohio.
 Gray—¾, 1—Gray Motor Corp., Detroit, Mich.
 Indiana—1, 1½, 2, 2½, 3½, 5—Indiana Truck Corp., Marion, Ind.
 International—¾, 1, 2½, 3½—International Harvester Co. of America, Chicago, Ill.
 Kelland—¾, ¾, 1—Kelland Motor Car Co., Newark, N. J.
 Kelly-Springfield—1½, 2½, 3½, 6—Kelly-Springfield Motor Truck Co., Springfield, Ohio.
 Kissel—1, 1½, 2½, 4—Kissel Motor Car Co., Hartford, Wis.
 Krebs—1, 1½, 2½, 3½—Krebs Motor Truck Co., Bellevue, Ohio.
 Lansden—¾, 1, 2, 3½, 5, 6—Lansden Company, Danbury, Conn.
 Larrabee-Deyo—1, 1½, 2½, 3½—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.
 Maccar—1½, 1½, 2, 3, 4, 5—Maccar Truck Co., Scranton, Pa.
 Mack—1½, 2, 2½, 3½, 5, 6½, 7½, T.T.—Mack Motors, Inc., New York, N. Y.
 Mason Road King—1½—Durant Motors, Inc., Long Island City, N. Y.
 Maxwell—1½—Maxwell Motor Co., Inc., Detroit, Mich.
 Menominee—1, 1½, 1½, 2, 3½, 5—Menominee Motor Truck Co., Clintonville, Wis.
 Nash—1, 2—Nash Motors Co., Kenosha, Wis.
 Northway—2, 3½—Northway Motors Corp., Natick, Mass.
 O. B.—1, 2, 3, 5—O. B. Electric Vehicles, Inc., Long Island City, N. Y.
 Oshkosh—2, 2½, 4—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.
 Overland—½—Willis-Overland Co., Toledo, Ohio.
 Patriot—1, 2, 3—Patriot Mfg. Co., Havelock, Neb.
 Penn—1, 2—Penn Motors Corp., Philadelphia, Pa.
 Pierce-Arrow—2, 3, 4, 5, 6, 7½, T.T.—Pierce-Arrow Motor Car Co., Buffalo, N. Y.
 Reo—1½—Reo Motor Car Co., Lansing, Mich.
 Republic—1½, 2, 3, 4—Republic Motor Truck Co., Inc., Alma, Mich.
 Rowe—2, 2½, 3, 4, 5—Rowe Motor Mfg. Co., Lancaster, Pa.
 Ruggles—¾, 1½, 2, 2½—Ruggles Motor Truck Co., Saginaw, Mich.
 Schacht—1½, 2, 2½, 3, 4, 5—G. A. Schacht Motor Truck Co., Cincinnati, Ohio.
 Selden—1½, 2½, 3½, 5—Selden Truck Corp., Rochester, N. Y.
 Service—1½, 1½, 2, 3½, 4—Service Motor Truck Co., Wabash, Ind.
 Signal—1, 1½, 2½, 3½, 5—Signal Truck Corp., Detroit, Mich.
 Standard—1½, 1½, 2½, 3½, 5—Standard Motor Truck Co., Detroit, Mich.
 Sterling—1½, 2, 2½, 3½, 5, 7½—Sterling Motor Truck Co., Milwaukee, Wis.
 Stewart—1, 1½, 1½, 2, 2½, 3½—Stewart Motor Corp., Buffalo, N. Y.
 Transport—1, 1½, 2, 3½, 5—Transport Truck Co., Mt. Pleasant, Mich.
 Traylor—1½, 2, 3, 5—Traylor Eng. & Mfg. Co., Cornwells, Pa.
 United—1, 1½, 2, 2½, 3, 3½—United Motor Products Co., Grand Rapids, Mich.
 Walker—½, 1, 2, 3½, 5—Walker Vehicle Co., Chicago, Ill.
 Ward—750 lb. to 7 Ton—Ward Motor Vehicle Co., Mt. Vernon, N. Y.
 White—¾, 2, 3½, 5—White Co., Cleveland, Ohio.
 Yellow Cab—¾, 1½—Yellow Cab Mfg. Co., Chicago, Ill.

Truck Manufacturers Who Distribute Locally

Acason—2, 3, 4, 5—The Acason Corp., Detroit, Mich.
 Ace—1½, 3—American Motor Truck Co., Newark, Ohio (receiver).
 Available—1½, 2, 2½, 3½, 5—Available Truck Co., Chicago, Ill.
 Betz—1, 2½—Betz Motor Truck Co., Hammond, Ind.
 Brinton—1½, 2½—Brinton Motor Truck Co., Philadelphia, Pa.
 Buffalo—2, 3—Buffalo Truck and Tractor Corp., Clarence, N. Y. (receiver).
 Casco—1—Casco Motors, Inc., Sanford, Me.
 Chicago—1½, 2½, 3½, 5—Chicago Motor Truck, Inc., Chicago, Ill.
 Clinton—1½, 2, 3, 4, 5 to 7—Clinton Motors Corp., Reading, Pa.
 Columbia—1½, 2½, 3—Columbia Motor Truck Co., Pontiac, Mich.
 Concord—1, 2, 2½, 3—Abbott-Downing Truck & Body Co., Concord, N. H.
 Corbitt—¾, 1, 1½, 2, 2½, 3, 4, 5—Corbitt Motor Truck Co., Henderson, N. C.
 De Martini—1½, 2, 3, 4—De Martini Motor Truck Co., San Francisco, Cal.
 Diehl—1, 1½—Diehl Motor Truck Works, Philadelphia, Pa.
 Dixon—1½, 2, 2½, 3½—Dixon Motor Truck Co., Altoona, Pa.
 D-Olt—1, 1½, 2, 2½, 5—D-Olt Motor Truck Co., Inc., Long Island City, N. Y.
 Dorris—1, 2, 3½—Dorris Motor Car Co., St. Louis, Mo.
 Eagle—1½, 2—Eagle Motor Truck Corp., St. Louis, Mo.
 Fulton—1, 2—Fulton Motors Corp., Farmingdale, N. Y.
 G. W. W.—1½, 2—Wilson Truck Mfg. Co., Henderson, Iowa.
 Gottfredson—1, 1½, 2½, 4, 5—Gottfredson Truck Corp., Ltd., Walkerville, Ont.
 Grass Premier—1, 1½, 2, 2½, 3½—Grass Premier Truck Co., Sauk City, Wis.
 Guildler—1½, 2, 3—Guildler Engineering Co., Poughkeepsie, N. Y.
 Harvey—2, 2½, 3½, 6, 10—Harvey Motor Truck Co., Harvey, Ill.
 Hawkeye—1, 1½, 2, 3½—Hawkeye Truck Co., Sioux City, Iowa.
 Hug—1½, 2—The Hug Co., Highland, Ill.
 Hurlburt—1½, 2½, 3½, 5, 7—Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.
 Independent—1, 1½, 2½—Independent Motor Truck Co., Inc., Davenport, Ia.
 Jumbo—1½, 2, 2½, 3, 3½, 5—Nelson Brothers Co., Saginaw, Mich.
 Kalamazoo—Kalamazoo Motor Corp., Kalamazoo, Mich.
 Kankakee—2½—Kankakee Motor Truck Co., Kankakee, Ill.
 Kearns—1, 1½, 2, 3½, 5—Kearns-Dughe Motors Co., Danville, Pa.
 Kenworth—1½, 2½, 3½—Kenworth Motor Truck Corp., Seattle, Wash.
 Kimball—2, 2½, 4, 5—Kimball Motors Corp., Los Angeles, Cal.
 King Zeidler—¾, 1, 1½, 2½, 3½, 5—King Zeidler Co., Chicago, Ill.
 Kleiber—1½, 2½, 3½, 5—Kleiber Motor Truck Co., San Francisco, Cal.
 Lange—2½, 3½—Lange Motor Truck Co., Pittsburgh, Pa.
 Luedinghaus—1, 1½, 2½, 3½, 5—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.
 Master—1½, 1½, 2½, 3½, 5, 5½—Master Motors Corp., Chicago, Ill.
 Moreland—1, 1½, 2, 3, 5—Moreland Motor Truck Co., Burbank, Cal.
 National—1, 1½, 2, 2½, 3½, 5—National Steel Car Corp., Ltd., Hamilton, Ont., Canada.
 Nelson-LeMoon—1, 1½, 2½, 3½, 5—Nelson & LeMoon, Chicago, Ill.
 Netco—2, 2½, 3, 4—New England Truck Co., Fitchburg, Mass.
 Noble—1, 1½, 2, 2½, 3½—Noble Motor Truck Co., Kendallville, Ind.
 Ogden—1, 1½, 2½, 3½, 5—Ogden Truck Co., Chicago, Ill.
 O. K.—1, 1½, 2, 2½, 3½—Nolan Truck Co., Okay, Okla.
 Old Reliable—2½, 3½, 5, 6—Old Reliable Motor Truck Co., Chicago, Ill.
 Olympic—2½—Olympic Motor Truck Co., Tacoma, Wash.
 Oneida—2, 2½, 3½, 5—Oneida Motor Truck Co., Green Bay, Wis.
 Parker—1, 1½, 3, 3½, 5—Parker Motor Truck Co., Milwaukee, Wis.
 Perfection—¾, 1½, 2, 3, 4½, 5—Perfection Truck Co., Minneapolis, Minn.
 Philadelphia Motor Coach—Phila. Motor Coach Co., Phila., Pa.
 Pioneer—1—Pioneer Truck Co., Chicago, Ill.
 Pittsburgher—2, 3, 3½—Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.
 Power—1½, 2½, 3½—Power Truck & Tractor Co., St. Louis, Mo.
 Rainier—¾, 1, 1½, 2, 2½, 3½, 5—Rainier Motor Corp., Long Island City, N. Y.
 Red Ball—3—Red Ball Transit Co., Indianapolis, Ind.
 Rumely—1½—Advance Rumely Thresher Co., Laporte, Ind.
 Sandow—1, 1½, 2, 2½, 3½, 5—Moses & Morris Motors Corp., Chicago Heights, Ill.
 Sanford—1, 1½, 2½, 3½, 5—Sanford Motor Co., Syracuse, N. Y.
 Saurer—6½, T.T.—Adolph Saurer, Inc., New York, N. Y.
 Steinmetz—Steinmetz Electric Motor Car Corp., Arlington, Baltimore, Md.
 Stoughton—1½, 1½, 2, 3—Stoughton Wagon Co., Stoughton, Wis.
 Super Truck—2½, 5—O'Connell Motor Truck Co., Waukegan, Ill.
 Traffic—1½, 2, 3—Traffic Motor Truck Corp., St. Louis, Mo.
 Triangle—1, 1½, 2, 2½—Triangle Motor Truck Co., St. Johns, Mich.
 Twin City—2, 2½—Minneapolis Steel & Machinery Co., Minneapolis, Minn.
 Ultimate—1½, 2, 2½, 3, 5—Vreeland Motor Co., Inc., Newark, N. J.
 Union—2½, 4—Union Motor Truck Co., Bay City, Mich.
 U. S.—1½, 1½, 2½, 3, 4, 5—United States Motor Truck Co., Cincinnati, Ohio.
 Wachusett—1, 1½, 2, 2½—Wachusett Motors, Inc., Fitchburg, Mass.
 Walker Johnson—1, 2½—Walker Johnson Truck Co., Woburn, Mass.
 Walter—T.T.—Walter Truck Co., Long Island City, N. Y.
 Ward La France—2½, 3½, 5—Walker Motors, Inc., New York, N. Y.
 Wichita—1, 2, 3, 4—Wichita Falls Motor Co., Wichita Falls, Texas.
 Wilcox—1, 1½, 2½, 3½, 5—Wilcox Trux, Inc., Minneapolis, Minn.
 Witt-Will—1½, 2, 2½, 3, 4—Witt-Will Co., Inc., Washington, D. C.



SERVICE AND REPAIR DEPARTMENTS



A Straight From the Shoulder Talk on Service

Service Has Become Such an Important and Indispensable Factor in the Promotion of Repeat Order Business and Customers Good Will That No Dealer Can Afford to Slight This Part of His Business. Service and Sales Departments Must Co-ordinate

I HAVE been convinced for many years that bad service can tear down good-will as fast as advertising and sales talks can build it. I am also convinced that most sales managements very seldom look at the Service Department as a sales aid and therefore do not take steps to train the Service Department to become the sales builder it should be.

WHAT is Service? What is Automotive Service? I know there are many among you who have given these questions much thought, too much in fact and I do not think they have come much closer to the right answer than the many worthy men who have spent their lives in finding out what electricity is. We know something about electricity, but there are many service employees who know hardly anything about service. Remember this about Electricity and Service, too It has to be given at the right time in right doses.

Put your hands on the third rail and you will touch it no more.

Put too much service on the customer's bill and you won't touch his car any more either.

What should interest us most is not what Service is, but what it can do and what it should do and as it has been my privilege to have had the experience of looking at Service from different angles, I have found out one thing that the aim of efficient service must be more new car sales.

The one thing which should be uppermost in every service employee's mind is, that the service he gives the customer must be such that the next new car or truck he buys will be of the same make. The service manager who does not realize this can never expect to become efficient or anywhere near it—HE IS ON THE WRONG TRACK.

Every service station employee should be taught the importance of his or her actions towards the customer. What good is it if you have the best looking girl in town for a telephone operator if she keeps your customer waiting on the wire until he is either half dead from lack of air in the telephone booth or he is on the verge of committing murder or suicide from the lack of attention on the part of your operator.

WHAT make of truck will the owner buy next time? Is he satisfied with the service you rendered, with the maintenance costs and with your organization?

How important is service to sales and should the sales and service departments co-ordinate?

Henry M. Holt, Brooklyn, N. Y., discussed these questions at the meeting of the Automotive Service Association of New York last month. Formerly service manager of a factory branch and a pioneer in the flat rate, he is well qualified to answer on these questions. He is now sales manager of Willys-Overland, Inc., Brooklyn. Throughout his talk he refers to cars but the same line of logic will apply to trucks. There is a message here both for the sales manager and the service manager.—Editor.

A thoughtless telephone operator is almost as detrimental to sales as the service manager, who instead of trying to find a way to win the good-will of an angry customer, tells him if he doesn't like the way he runs the place, he can go elsewhere for service.

As a fitting punishment for their crime, that service manager ought to run away with the telephone operator and get married.

Many service managers go around with a chip on their shoulder—they are at war with the sales department and look upon the salesmen as something which has been put there to add to his daily troubles. A service manager with such thoughts is not only useless but a destroyer of sales.

It has been estimated that it takes about fifteen men one day to make a car—it has also been estimated that one knocker kills six sales. These figures should be kept in mind, for when you find out that one of your customers have bought a new car of another make because of the unsatisfactory service, just remember that you have not only lost a customer and six future sales, but you have robbed fifteen men at your factory of the chance of making a living for six days and if each man at the factory has a family depending upon him and if the grocer, the butcher and the baker cannot be paid as there is no money coming in, you can see for yourself how far reaching the effect is.

The Factory's Viewpoint

Have you ever asked yourself why the factory maintains service? In order to fully understand that question, we must first know what the factory is in business for. Every automobile manufacturer is in business primarily to make and sell new cars. Therefore service stations are maintained to keep cars in such condition

so that more new car sales will be made. Service keeps them sold and the number of return sales is a reflection of the service given.

Service on a car begins before the car is delivered—it begins at the factory. No engineer is today overlooking that fact. The local service departments responsibility to the sales department begins when the new car is being made ready for delivery and the service manager under whose jurisdiction I believe such conditioning should come, should make sure that a competent man has charge of such work.

Nothing will more quickly destroy a car owner's faith in a product and nothing will so quickly put a damper on a car owner's willingness to boost a car and help selling more of them than when an owner finds out that his new car was not in a condition to be delivered and that nuts and bolts were literally dropping off from the first day he took the car out. Make sure, as sure as you can, that the new car is delivered right.

It is only natural the owner of the new car should come to the salesman who sold him the car with his troubles, but it is very unnatural for the service manager to get offended at the salesman when this individual tells him about it. When a salesman comes to the service manager with his owner's tale of woe, the service manager, if he is on the job, will thank the salesman for the favor, for a favor it is. You then have a chance to show a complaining customer what you can do for him. Get him into your office—sell him on the idea that you are there to give the best service possible. Then **KEEP YOUR WORD** and live up to what you told him.

It is expected of every service manager to satisfactorily adjust a complaint, but it takes a good service manager to reduce the number of complaints to a minimum by getting rid of the cause.

You may say that it is easier to say it than do it. That's quite true—for to make the service station employees understand how important they are from the smallest grease ball to the shop foreman takes work—hard work on the part of the service manager. But, it can be done and it must be done if you want your company to stay in the new car selling business.

How would I do it, well I'll tell you First of all I would make up my mind as to what my own job should be. It may sound harsh to say that, but there are many service managers to day that haven't found that out yet. Secondly, I would let the men that work with me know what their jobs are. Thirdly, I would check up the whole works and see that the place is running properly. That is all there is to it, and it is an old method and I doubt very much if it can be improved upon. One of our pioneer railroad builders divided management into three principles, organization, deputizing and supervising.

You have to organize any department before you can expect it to function properly. Then you have to deputize or delegate the various duties to men you think can be of help to you—don't make

the fatal mistake and try to do it all yourself. And, finally you the boss of the job has to see that the whole thing keeps on the right track. You may study management in all its branches and it is the right thing to do for a man that wants to go ahead, but you cannot improve very much on the three principles just mentioned—one thing is absolutely certain, you can't do justice to yourself or your company without them.

Why is it that so many service managers omit holding conferences with their department heads? Why is it they don't get together more often? I have asked myself that question many times and I think it would be a proper question for every service manager to ask himself that question when he starts work tomorrow morning. Try it this week, get your department heads together, tell them about your company, get them interested. Tell them they are a part and an important part of one of the biggest industries in the world. Tell them that this industry, their industry will grow and grow and nothing on the earth can stop



Henry M. Holt

it. Work up enthusiasm in yourself, get your men enthused. Work yourself into a Divine rage if you have to and if you can start with yourself first then tell your men, but tell them—that's the main thing, tell them and tell them this week.

You have heard the word "Gentlemen" used very often still there are thousands of people who have heard the word yet have only a faint idea what it means. But, there is something a gentleman and service station should have in common—they should be clean both inside and outside, as clean as possible so that when Percy Chamberlain's lady in white comes to your service station she may find the place such that the next new car she buys will be from you.

Not since the automobile was first put on the market has anything that the service station has ever done helped to sell more cars than the flat-rate system. Still it is only a few years since the flat-rate system of selling repairs was not looked upon with favor by many service managers. I remember at one of the National Service Conventions, one factory service

manager felt very indignant when it was pointed out that it was going to be the coming practice of selling repairs. He believed that everybody was honest and that the flat-rate system was a blot on their honesty. Well, of course no one doubts the honesty of neither customer nor mechanic, not even taxicab driver, but it has been found a good practice to use a flat rate, especially on taxicabs.

Don't Kid the Customer

Have it understood with the customer, what you are going to do for him and above all, don't try to kid him. Kidding a customer is one of the most effective sales destroyers that the Service Station can employ. I knew a service manager once whose main ambition seemed to be to kid the customers along for ninety days and then charge them for the work they were rightfully entitled to have had done within the warranty period. Do you think that his method sold more cars for the company? It did not, the distributor went broke. He went broke because his service department poisoned the owners.

It has been written "Thou shalt not kill" but a service manager who kides a customer during the warranty period for the purpose of soaking him, later is surely a killer—OF SALES.

If a service manager wants to know what kind of service he gives he should ask the salesmen, their owners have told them. Now, let us spend a little time with the sales department. As you all know there is a keen competition in our industry and a salesman has to be on his toes to bring home the bacon, he is taught to overcome sales resistance but it sometimes takes all the grit and courage that the salesman has in him to do it, so don't blame him if he kicks when he finds out that his own service department gives more sales resistance than anything else.

Sometimes a salesman may try to make a mountain out of a mole hill, but it is a good thing for a service manager to look into any kick that a customer may have.

The salesman who is a chronic kicker is a liability to his own department because as a rule he spreads discontent and a discontented salesforce is a wholesale killer of sales.

The salesman who can't see something good in the service department is generally no good himself. Years of experience has proven that to me. You will never find him on the top, because he has not got the mental make-up to get there.

I know salesmen who are always welcome in the service manager's office and for whom the service employees and the service managers will do all they can to help him make more sales. Why? Ask the salesman who sells the most cars—he knows. He has caught on to the secret of getting on with people.

The salesman who has not learned to establish a friendly relationship between himself and the service organization knows only half of his job. That goes for the sales manager too.

You have heard of the salesmen who often use the expression, "Oh, the service is rotten." Well unfortunately he is in most cases the man who sells the least

number of cars—how can it be any other way? It's only when a salesman believes in himself, his sales manager and his service organization, that he can go out and put it over.

A service department can be made a sales gold mine if the salesmen will only take the trouble to go prospecting there. To the sales manager who daily tells his salesmen to go out and dig up new prospects, to him I would say, "Seek and ye shall find" prospects in the service department.

Sales managers spend much time and efforts in teaching salesmen how to sell cars but how much time does the average sales manager spend on the service manager to make him understand something about the sale of new cars. How often do they get together for a friendly chat

about the value of the right kind of service as an important factor in selling new cars. I'll wager that some sales managers have never given it a thought.

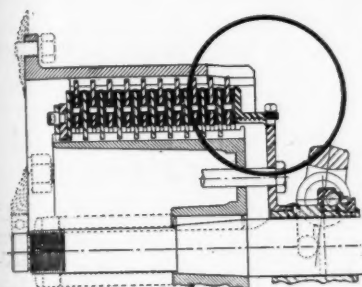
The art of salesmanship is just as important to the service manager as it is to the salesman, and when the salesforce is sold on the service you will find that the service manager is a man who understands the value of salesmanship.

To the sales manager I would say get together with service manager, his job is just as hard as yours but it can be made a whole lot easier if he knows something about salesmanship and it's up to you to help him.

To the service manager I would give this advice, "Learn all you can about salesmanship." It is going to help you and help you a whole lot in your work,

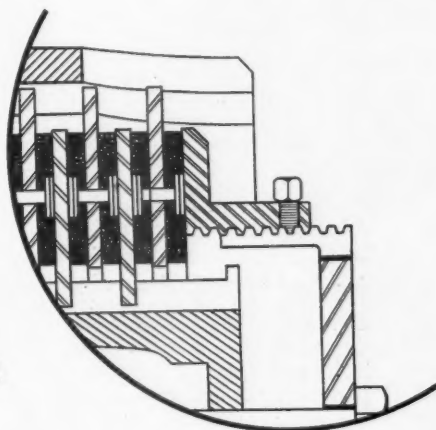
and it will help all of you here no matter what your job is. Salesmanship in the service department can have but one result—the sale of more new cars—and the best way service manager can sell himself and his organization to the sales department is to give such service which will help selling more new cars.

Never before has the old saying, "United We Stand" fitted better than it does now, with regards to sales and service, for if these departments try to work separately instead of co-operating as a powerful body with the one aim of making the present car owner stay in the family, the result will be inevitable. That organization will become a corpse in our industry with a tombstone to mark the time and the place when "They also made a car."



Sectional View of the Model D Clutch

The enlarged sectional view shows the method of adjusting the friction faces for wear as explained in the text.



Two New Detlaff Clutches

TWO new multiple disk clutches are now being made by the A. J. Detlaff Co. of Detroit. The Model D is intended for heavy capacity motor trucks, buses, gasoline locomotives and similar applications, and is made in 6 to 10 plate sizes, depending upon the torque to be transmitted. The Model M is a light truck or passenger car type, made in 3 to 7 plate sizes.

Both of these clutches use gear tooth drive throughout, from outer drum to driving disks and from driven disks to inner drum. However, the lighter clutch, Model M, can also be supplied with conventional 3-pin drive if desired.

In the 6, 7 and 8 plate heavy duty clutch, Model D, spring pressure adjustment is provided for by means of 3 self-locking bolts, one for each of the three springs.

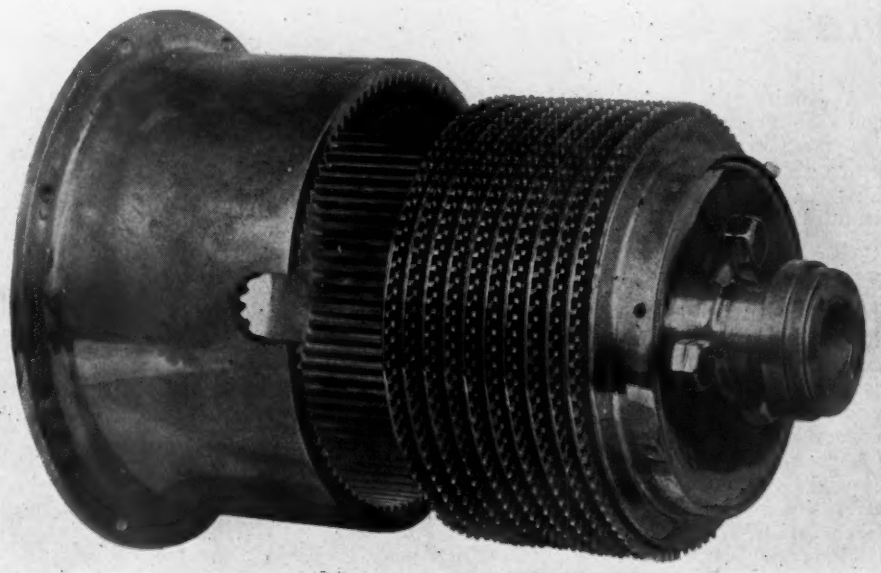
The 9 and 10 plate sizes are equipped with extra long self-compensating springs, making adjustment at this point unnecessary. All of the Model D clutches are provided with a two piece adjustable pressure plate to allow adjustment to compensate for wear of the friction facings on the disks, and to keep the travel of the throw-out mechanism within nominal limits. The two parts of the pressure plate are threaded together, a heavy square section thread being used.

When the inner section or hub of the pressure plate is held stationary and the outer section or flange is turned one full revolution, the outer section is ad-

vanced $\frac{1}{8}$ in. on the hub, thus moving the pressure face forward that amount without altering the throw-out mechanism. A total adjustment of $\frac{3}{8}$ in. is provided, with a lock screw to secure the adjustment at every full turn or $\frac{1}{8}$ in. forward movement. Before the limit of this adjustment is reached an extra driving disk can be added if desired, thus restoring the clutch to its original setting.

Adjustment of the model M clutch is made by means of four self-locking nuts bearing on the central spider. The use of a driving drum is optional with this clutch, as the driving teeth may be cut direct in the flywheel recess if desired.

Both clutches are of the push out type, being pushed forward to release, and both are fitted with angular contact radial type ball bearings to take the release thrust. These bearings have press fitted oil tight covers or oil retainers, and can be lubricated from the transmission or through a separate lead from the exterior of the clutch housing.



The Detlaff Model D 10 Heavy Duty Clutch

For heavy capacity trucks, tractors, buses and gasoline locomotives

American Motor Body to Build Six Wheel Buses

Further developments following the purchase sometime ago by the American Motor Body Corp., of Philadelphia, from the Goodyear Tire & Rubber Co. of a license to manufacture the Goodyear design of six-wheeled chassis for motor buses, include the inauguration of production activities for the first ten buses. Materials for the units have been purchased and production will be pushed at all speed. It is expected that the first vehicles will be on the road late in May. The present schedule calls for a run through of 100 vehicles.

Charles M. Schwab is active in the Philadelphia company and is taking a personal interest in the bus production.

The company is developing one chassis in two wheelbase lengths, a longer one for intercity work and a shorter wheelbase for city work. Both will be single deck DeLuxe type vehicles. The units to be used are: Continental six-cylinder engine, Timken axles; Brown-Lipe gearset; Ross steering gear; Northeast electric system and Budd disk wheels.

Columbia Body to Manufacture Commercial Bodies

The Columbia Body Corp., Columbia, Pa., has been organized to take over the Columbia Wagon and Body Co. whose net assets are reported to be worth \$500,000. Michael R. Hoffman, owner of the Columbia Wagon & Body Co. also holds all of the stock in the new company, of which he has been named as president. M. R. Hoffman, Jr., is treasurer and Guy S. Hoffman secretary. George W. Hall, formerly vice president of the Martin-Parry Co. of York Pa. is general manager and sales agent. The corporation will continue the manufacture of horse-drawn vehicles but will bring out a line of commercial automobile bodies which probably will constitute seven-eighths of its business.

Trailer Manufacturers Plan Simplification

A definite step toward standardization and simplification was taken by the Trailer Manufacturer's Association at a meeting held on March 25th at the Hotel Statler, Detroit. After consultation with representatives of leading firms engaged in the manufacture of axles, springs and wheels, the members of the Association decided to confine their first efforts to these products. The Association will start immediately gathering blueprints and specifications from trailer manufacturers for use in considering how reductions may be made in the number of types and sizes of axles, springs and wheels.

All manufacturers of these three parts will be asked to co-operate in this work, and after the preliminary steps have been taken assistance will be sought from the Division of Simplified Practices of the Department of Commerce. It is planned to hold the next conference in Detroit on April 22nd.

In order to facilitate team work along standardization and simplification lines the Association decided to admit firms manufacturing trailer parts as associate members.

Ten Leading Export Markets Taking More Trucks

In a survey of ten of the leading foreign markets for American cars and trucks for the year 1923, by the Automotive Division of the Department of Commerce, all but two of the truck markets were found to have taken more than 1000 vehicles and total shipments exceeded even those of the boom year of 1920. Report is also made that the survey indicates that the exports are steadily being distributed more equally to the ten leading countries.

The increase of 1923 over 1920 in the case of trucks shipped to these countries was 24.1 per cent. The figures are as follows: 1923, 18,887; 1920, 15,216. The most notable change in position over a period of 10 years was that of Japan who took 21 American trucks in 1913 and 5,111 in 1923. Large as the latter figure was, it was still slightly under the record for truck shipments to a single country, established in 1920 by the United Kingdom with purchases of 5,202.

Duplex Truck of Lansing Enjoying Good Business

Detroit, March 28.—Duplex Truck Co. is now in production on a full line of models in its new plant in Lansing. The company reports present business larger than early year business for the past several years. There are enough orders on hand, the company reports, to maintain operations in full for some time and it has added a number of men to speed things up.

Reo Motor Car Co. is using the plant bought from Duplex as its bus plant and has already transferred practically all of its bus work.

Gear Manufacturers' Association to Meet in Buffalo

The eighth annual meeting of the American Gear Manufacturers' Association will be held April 28-30 at the Lafayette Hotel, Buffalo. Among the speakers will be J. C. McQuiston, manager of the publicity department of the Westinghouse Electric & Manufacturing Co., who will talk on "Advertising as an Investment to the Gear Manufacturer."

Sandow Buys Assets and Good Will of Kalamazoo Motors

The Sandow Motor Truck Co. of Chicago Heights has purchased from John L. Carey, receiver for the Kalamazoo Motors Co., the assets and goodwill of that company and will move the entire stock of merchandise on hand to Chicago Heights in the near future. The service of all trucks will be continued.

Dart Truck Company Bought by Waterloo Business Men

The Dart Truck and Tractor Corporation of Waterloo, Iowa, was sold at a receiver's sale on March 19th, at Waterloo to a company of Waterloo business men, and in the future will be operated as the Hawkeye Dart Truck Co. The new officers are A. H. Caward, president; W. B. Caward, vice-president; H. S. Caward, treasurer, and H. C. Wurster, secretary.

This purchase represented about \$28,000 worth of machinery and all office fixtures and equipment and about \$75,000 worth of parts and tools, such as Timken bearings, Continental motor parts, wheels, cabs, etc.

The Dart Truck and Tractor Corp. was established in 1890 and is well known in the middle west.

A. H. Caward, president of the new company is also head of the Hawkeye Oil Co. He has built up a very successful business with Waterloo as headquarters.

Crandall Made Receiver of Transport Motor Truck

Roland Crandall of Chicago has been named receiver of the Transport Motor Truck Co. of Mt. Pleasant, Mich., by Federal Judge Tuttle. The proceedings were instituted by the First National Bank of Chicago, the Goodyear Tire & Rubber Co. and the Old National Bank of Grand Rapids. The company is five years old and is declared to be solvent. Bills amount to \$400,000 and officials say they have been offered \$350,000 for the company. There are 2100 stockholders.

Claim Against Republic Said to be Cancelled

The Security Trust Co. of Detroit, receiver for the Republic Truck Co., has received unofficial advices that the Government claim of more than \$400,000 against the estate of the Republic company has been cancelled and that in addition a refund of \$50,000 for over-assessment is to be made. Of this amount of \$50,000 approximately 25 per cent is due the Republic estate, the balance going to the Torbensen Axle Co., of Cleveland, at one time a Republic subsidiary.

Over Seventy Thousand G. M. C. Stockholders

The General Motors Corp. now has more stockholders than at any time in the history of the organization. This total, as was evidenced March 12, when dividend checks were mailed, was 70,009 in comparison with 68,063 at the end of the fourth quarter of 1923, 68,281 in the third quarter and 67,417 in the second quarter. The increase comes among the holders of common stock, which has increased from 46,587 to 48,568.



The One Resilient Metal Wheel

BUILT by a remarkable process from a rolled-steel I-beam, the Bethlehem Wheel combines the tremendous strength of rolled steel with the ability of rolled steel to "give" under stresses. It is the one metal wheel that is resilient.

The Bethlehem Wheel helps to cushion road shocks and reduce destructive, costly wear and tear. It lessens wear and tear particularly on those vital parts which the springs afford

no protection—the rear axle, differential, and drive shaft. It takes part of the burden off the tires, too, and adds to tire mileage.

The Bethlehem Wheel means fewer repairs and longer life for both tires and chassis, and consequently lower cost of operation. It is contributing substantially to the serviceability and economy of thousands of good trucks in everyday usage.

BETHLEHEM STEEL COMPANY, General Offices: BETHLEHEM, PA.

Sales Offices in the Following Cities:

Philadelphia	Washington	Buffalo	Cleveland	New York	Baltimore	Pittsburgh
Boston	Cincinnati	Chicago	Detroit	St. Louis	San Francisco	Atlanta

BETHLEHEM ROLLED STEEL TRUCK WHEELS

Government Announces Gross Weight on Motor Trucks

The question of how heavy a truck may be loaded has at least been settled in so far as the Federal government is concerned, and the government's action, it is expected, will have its influence on state regulation of truck loading. The question was under discussion for several weeks before the Senate Committee on the District of Columbia, testimony being secured from highway engineers, the U. S. Bureau of Public Roads and from representatives of the Motor Vehicle Conference Committee, representing the A. A. A., the N. A. C. C., the National Automobile Dealers' Association and the Rubber Association of America.

The law as finally drawn limits the gross weight of vehicles including body and load to 28,000 pounds, provided the width of the vehicle, including load, is not more than eight feet, or more than twelve and one-half feet high and thirty feet, including load, long.

The recommendations of the Motor Vehicle Conference Committee, representing not only the truck user, but the manufacturers as well, were incorporated in the law. The Uniform Motor Vehicle law, which was drafted by the Motor Vehicle Conference and which is recommended for adoption in all of the states, provides a weight restriction of 28,000 pounds gross weight, distributed not more than 22,400 pounds on one axle, nor more than 800 pounds per inch width of tire measured between the flanges of the rim.

Thomas H. MacDonald, Chief of the Bureau of Public Roads, told the Senate Committee, during the course of hearings, that the question involved is not so much that of gross load as of weight concentrated on one wheel, and how much weight is concentrated per inch width of tire. The model law, he said, would be a regulation of the wheel load rather than a truck load. "If we regulate the wheel load to a maximum load so that it is not too heavy for the road to bear structurally and then limit the pressure per inch width of tire so it will not deform the surface we have accomplished the purpose without necessarily fixing the maximum load to be moved at all," he testified.

In ignoring the recommendation that no weight limit was essential to a good truck-loading law, the Senate Committee, expressed as its belief, that the amount should be written into the law as an expediency and thus not leave to the individual truck owner the duty of computing his truck load on a basis of so many pounds per axle on a given width of tire measurement.

The law as applicable to the District of Columbia further provides that every motor truck shall be marked on each side in letters three inches high and of a contrasting color to show the combined gross weight in pounds of the chassis, body and maximum load that the manufacturer certifies the truck is designed to carry.

Rubber Association Collecting Important Data

New York, March 31.—Carrying out its plan of inventorying the stocks of the retailers, the Rubber Association of America has sent questionnaire to 120,000 tire dealers asking for authentic data as to the number of pneumatics and solids and inner tubes on their shelves. It is expected that all of the returns will be in by April 10.

Approved by the National Automobile Tire Dealers' Association, which is co-operating with the Rubber association, this statistical activity should be of material assistance to manufacturers in enabling them to plan their production schedules. When the new system is working and quarterly reports secured, comparisons will be possible that will benefit both maker and dealer.

In the questionnaire sent out the tire dealer is asked to report not only his stock on hand but also inform the Tire Manufacturers' Division, which is conducting the survey, if accessories are also sold; if gasoline and oil are handled; if general hardware is sold; if automobiles are sold; if tires are vulcanized and if tires and tubes constitute the major part of the sales.

G. M. T. Company Experiences Big Production

Sales of motor trucks during the first two months of 1924 by the General Motors Truck Co. have exceeded all previous records for the same period. The demand has been so great that the company has more unfilled orders on hand than it ever did in any previous March.

According to Vance H. Day, General Sales Manager, the total number of orders received by General Motors Truck Co. during January and February this year was 21 per cent greater than orders during the same two months in any preceding year.

"Improved business conditions," said Mr. Day, "greater use of motor trucks in all lines of industry and the elimination of discarded war equipment by the government from competition are three sound reasons why truck sales in 1924 should break records."

Mr. Day also announces the opening of a new factory branch in Cleveland to take care of the rapidly expanding business in that territory. The branch has 20,000 square feet of floor space and is equipped with everything necessary for the servicing of GMC Trucks. O. W. Crawshaw, district sales manager, is in charge of the branch.

Perfection Gear Now Making a New Line

The Perfection Gear Co. of Chicago, which is exclusively licensed to manufacture gears from formica, is now in production on a complete line of steel differential drive gears and pinions in addition to its line of formica timing gears. This company reports a rapid increase this year in its replacement gear business.

Mid West Grinders' Association Getting Results

Constructive plans for handling an increased volume of business for 1924 was the keynote of a two day meeting of the Mid West Cylinder Grinders' Association at Omaha, Neb., recently.

Representatives of cylinder grinding and motor rebuilding companies from eight states took an active part in the discussions which were led by John J. Fuchs, Jr., president of the Mid West Regrinders Association and president of the National Association.

It was brought out that since the formation of the Mid West Association its accomplishments along standardization of accounting, shop practices, rates, sales and service, have not only been found of material benefit to each member but have attracted new members to its organization. So effective has been this work that practically every meeting has representatives from other sections of the country who attend with an idea of organizing in their part of the country. Announcement was also made by representatives from the Peoria Machine Works of Peoria, Ill., that an association would be formed there in the near future.

Des Moines, Iowa, was chosen as the meeting place of the Mid West Association in June.

Arrangements for Refinancing Continental Are Completed

Arrangements have been completed for the refinancing of the Continental Motor Corp. According to executives, the company will be prepared to go back to a dividend-paying basis within a short time.

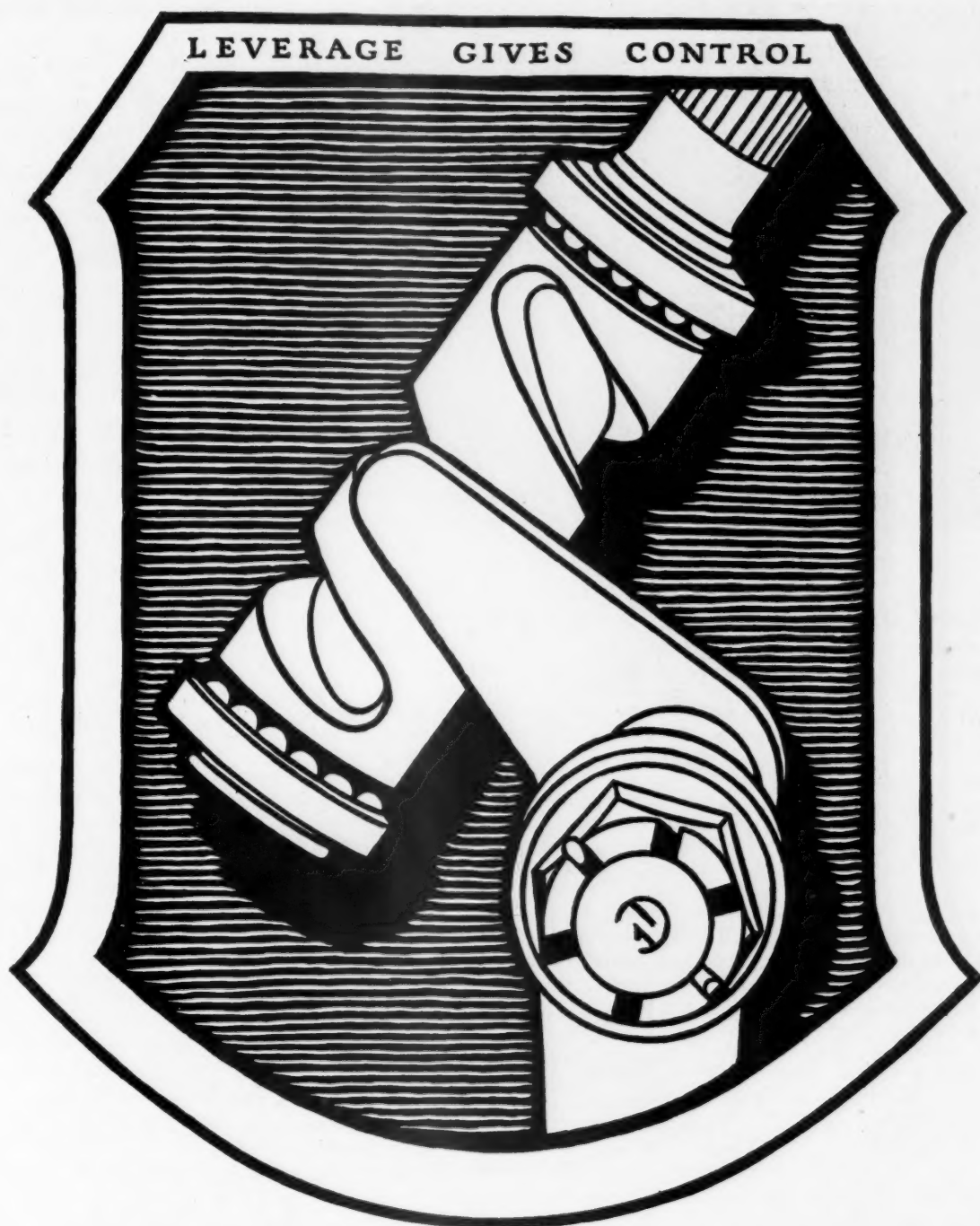
The business outlook is reported by the Continental company as at its best. More business is being offered than can be accepted and this condition promises to hold true for a large part if not all of the year.

Well-Known Detroit Bearing Companies in Merger

The Muzzy-Lyon Co. and the Federal Bearing & Bushing Corp., both of Detroit, have merged into a new corporation to be known as the Federal Mogul Corp. The new name is derived from the trade names of the products of the two former companies.

Plants of both companies will be continued, giving a combined manufacturing space of more than 100,000 feet. No new financing is to be undertaken in connection with the merger as the capital of the new corporation is declared ample.

Officers and directors of the Federal Mogul Corp. are made up from the personnel of the former companies. J. H. Muzzy will be chairman of the board; Lloyd P. Jones president; H. Gray Muzzy vice-president; David W. Rodger secretary and S. C. Reynolds treasurer. The officers and H. W. Grant, F. C. Heath and C. R. Murphy comprise the board of directors.

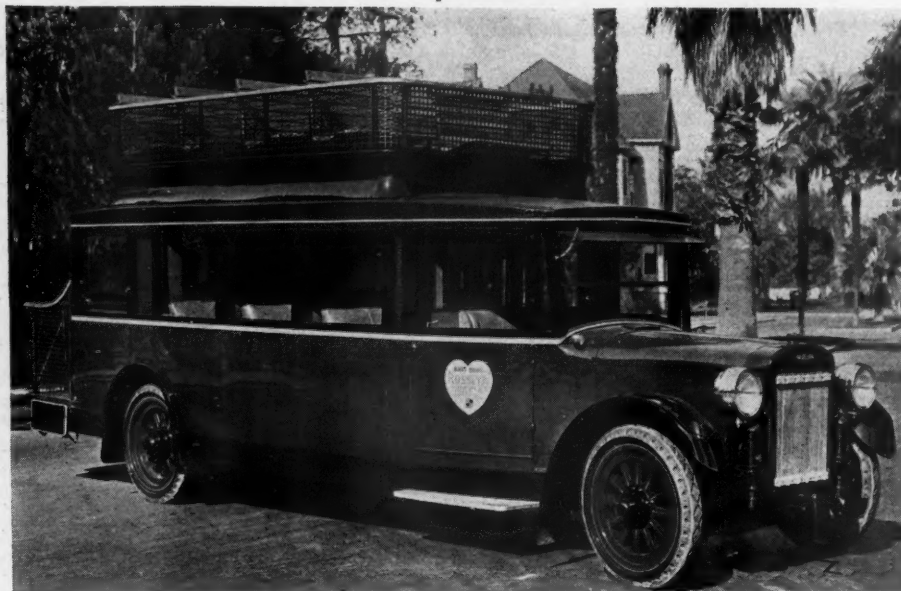


PROGRESS IS INEVITABLE

New standards of ease and certainty have been reached in the *starting* and *stopping* of motor vehicles. Ross now does as much for *steering*.

Ross Gear & Tool Co., 760 Heath St., Lafayette, Ind.

ROSS
CAM and LEVER  **STEERING GEARS**
EASIER STEERING LESS ROAD SHOCK



New Hotel Bus on a Moreland Chassis

A Motor Bus of Unique Design

This motor bus has just been placed in service by Messrs. Hart Bros., of the Rosslyn Hotel of Los Angeles and is used primarily for carrying passengers to and from the railroad stations and the hotel.

The body design combines the "modern" with a suggestion of the old English stage coach effect of Dickens' period. The body has a seating capacity of fifteen passengers inside and thirteen outside, in addition to the separate compartment for the chauffeur and footman. There is also an enclosed compartment inside for small baggage.

The cushions are of Moorish grain leather, of bronze green shade. In addition to the regular spring cushion seats, individual air cushions are provided giving an ottoman effect in appearance. The flooring consists of inlaid block linoleum, imitating marble finish. The body is cadillac blue, with a band of light navy blue. Wheels are blue with light navy blue strips. The frame apron, as well as the body from the window sashes up, is black. Handrails are nickel-plated. Special crank type nickel-plated window lifts are provided for the extra wide plate glass windows.

Note the Rear Platform

The rear platform has the appearance of a Pullman observation platform, with a side, as well as a rear entrance with folding platform steps.

The power plant is a Continental engine, with special aluminum pistons and dur-alumin connecting rods, which together with the special camshaft, gives the required valve timing for the vibrationless high speed engine.

The radiator is of the Moreland sectional type, having an aluminum head, other units are Timken axles, and the Ross special cam and lever steering gear. The body is mounted on the Moreland Standard bus chassis.

The Selden Pacemaker

The new 1-1/4 ton Pacemaker model of the Selden Truck Corp., Rochester, N. Y. can be equipped with either a four or six cylinder engine, depending on the particular kind of delivery work which is to be done. A four cylinder Hercules, 4 by 5 in. engine is used for city delivery work, and when so equipped the list price is \$1575 f. o. b. factory. A Continental six cylinder 3 3/8 by 4 1/2 in. engine is used for deliveries to the outlying districts and when so equipped the price is \$1725.

In both cases, standard equipment includes electric starting and lighting, speedometer, Motometer, Alemite chassis lubrication, set of tools and jack, hand tire pump, running-boards, pneumatic tires and full set of fenders.

In designing this truck, all units were selected with the thought in mind that both sizes of engines were to be used. Drive from the engine is taken through a Brown-Lipe dry plate multiple disk clutch and three speed gearset and from

there through a two-part propeller shaft supported at its center on a ball bearing.

The 3/4 floating rear axle is a bevel gear drive type with a single piece pressed steel housing and single weld. The frame is of pressed steel, 3/16 in. thick and 5 1/2 in. deep.

Tires are 34 by 5 both front and rear. The wheelbase is 144 in.; and the tread 56 in. Body weight allowance is 950 lbs., the company supplying either a standard express with canopy top, platform stake and rack types at extra cost.

Ten Per Cent Selling— Ninety Per Cent Keeping at It

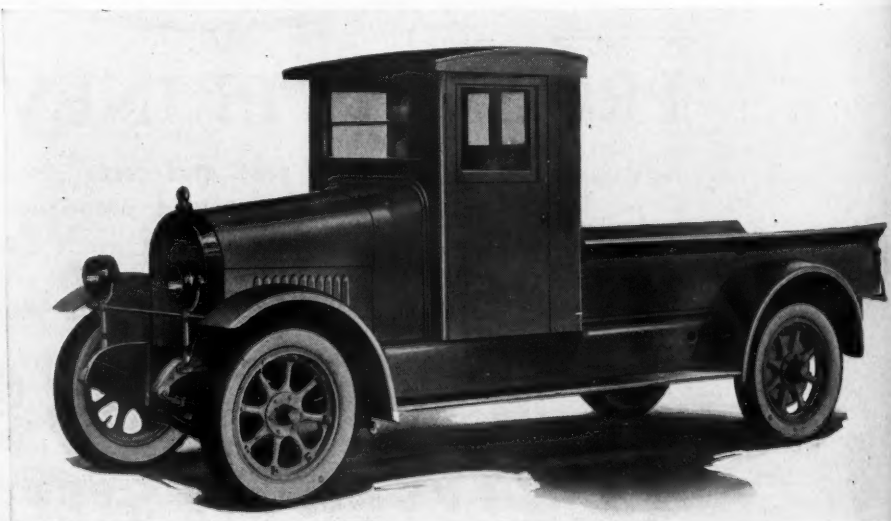
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When it comes to actual selling, Mr. Casey says, the main thing is to know one's own product and the products that are in competition with it. The next thing is to know every one who is likely to influence the sale in any way and, if possible, have them all on one's side. Overlooking some minor character in the organization may cause him to feel slighted and to recommend a competing product.

On Truck Discounts

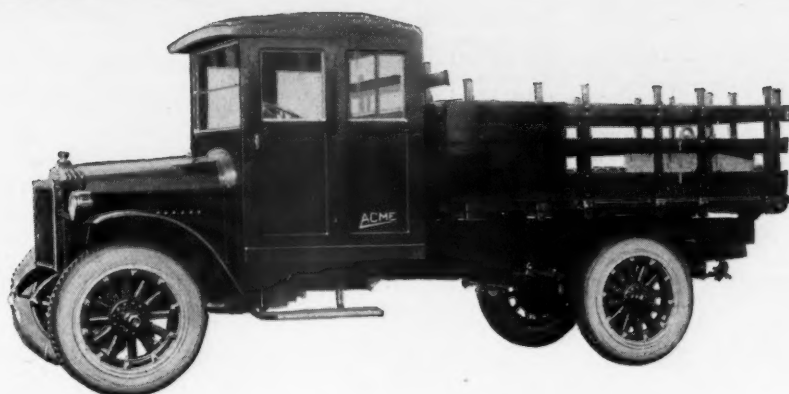
The discount on the White truck does not allow the distributor to offer more for a used truck in trade than it can be sold for, Mr. Casey insists, and the White Motor Truck Sales does not do wild trading. Last year it took in and sold a considerable number of used trucks and, after paying the used car manager's salary and the salesman's commission, together with such minor repairs as were made on the trucks, showed a very small profit on them, which is as it should be.

On the other hand, Mr. Casey emphasizes the fact that to be successful, the distributor or dealer must be prepared to give good service and he insists that his company does so.



New 1 1/4 Ton Pacemaker Model Just Introduced by the Selden Truck Corporation

ACME



Announcing The ACME SPEED "SIX"

DEALERS are rapidly piling up sales with the New Self-Starting Acme Speed "Six." Designed for the "92% Market" for 1½ ton and less—the lighter truck market, where 92% of the truck sales were made last year—Acme Speed "Six" has made an extraordinary showing for dealers everywhere. It sells like a passenger car and here is the "why" of it!

- 1st**—Acme Speed "Six" is built of real truck units, by a heavy duty truck manufacturer who has used heavy duty principles in building the latest, fastest selling unit of the Acme Line.
- 2nd**—Acme Speed "Six" carries a pay load of up to 3000 lbs. and its exceptionally rugged construction gives it a life of **5 to 7 years**, instead of the 1 to 2 years of ordinary light trucks.
- 3rd**—It handles with passenger car ease and flexibility—with remarkable power and economy. A six cylinder motor of 56 brake test horse power gives Acme "Six" a speed better than 35 miles an hour unvaryingly, and **produces no vibration even at 2500 revolutions per minute**. It is equipped with starter, electric lights and generator. It has every well-known Acme quality of permanent performance plus swiftness and durability.

Passenger car dealers with the Acme Speed "Six" and the rest of the Acme Line, can average 7% or 8% profit, or better, instead of last year's 3% average, because overhead remains practically constant while the sale of Acme Trucks jumps the net profit.

The gross profit on the average sale of the Acme Speed "Six" and equipment exceeds that of passenger cars in the \$2000 class.

Try out the Acme "Six" and you will see its sale possibilities as you drive it fast and slow, over good roads and bad.

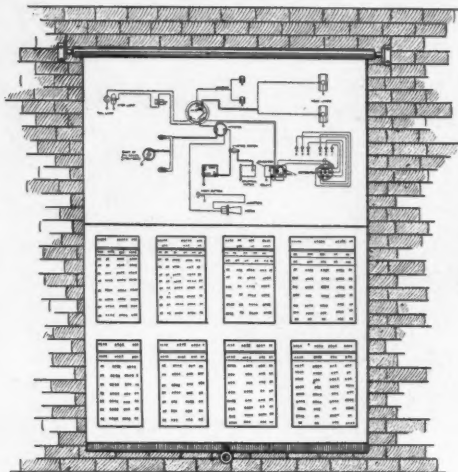
You will want to write, wire or phone for information on our new exclusive dealer franchise and further information about the truck. Do it today.

ACME MOTOR TRUCK COMPANY
530 Mitchell Street Cadillac, Michigan

"Acme Covers the Whole Field of Trucking Needs with the Balanced Acme Line"

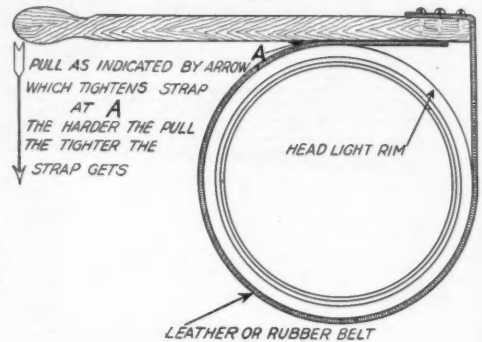


SHOP HINTS



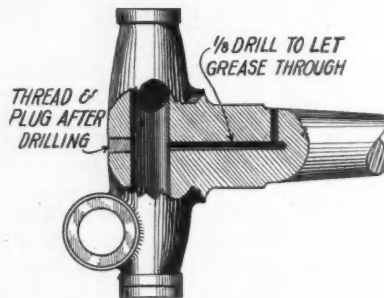
Handy Shop Data Holder

A standard window roller shade can be used to protect wiring diagrams, tables of sizes and other useful data used in a repair shop. When not in use it can be rolled up.—W.



Headlight Rim Remover

For removing headlight rims, gas tank caps, radiator caps, etc., the above device will prove effective. An ordinary leather or rubber belt fastened to the end of a wooden handle by means of screws is all that is needed. The other end of the belt is free.—F. J. W.

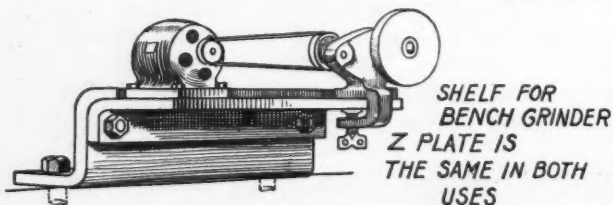
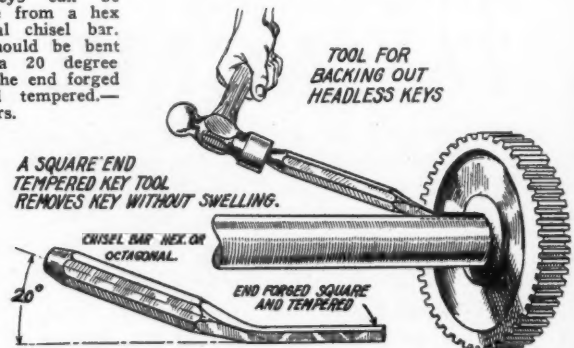


Greasing Wheel Bearings

To grease the front wheel bearings of a Ford without removing the wheels from the car, drill the spindle as shown above and plug up hole. A pressure grease gun applied to the connection on top of the king pin will force grease into the wheel bearings as well as to the spindle bushings.—Floyd S. Shook.

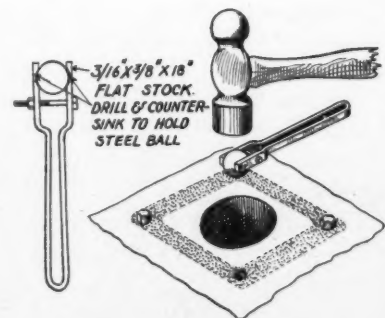
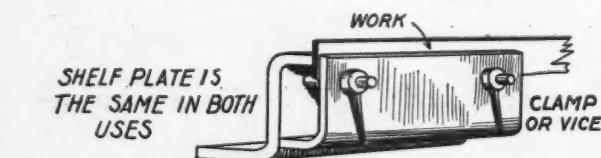
Tool for Removing Keys

A tool for backing out headless keys can be easily made from a hex or octagonal chisel bar. The bar should be bent at about a 20 degree angle and the end forged square and tempered.—G. A. Luers.



Fixture for Shop Bench Operations

This fixture can be used to clamp strips of thin metal, for holder bench grinder and many other purposes. Made of 1/4-in. steel plate. In mounting the bench grinder a third plate is used which acts as a shelf. If desired the grinder can be driven from a pulley and motor mounted on this same plate.—G. A. Luers.



Novel Gasket Punch

The device shown above can be made of flat stock 3/16 x 3/8 x 18 in., and will hold various sized balls. A light blow of the hammer will cut a clean pattern.—F. J. W.

Garford Distributors Already Reaping Big 1924 Profits

Farsighted dealers are urging users of motor transportation to arrange for Garford equipment well in advance of the approaching busy season.

It is already evident that 1924 Garford sales will far exceed those of 1923.

Realizing this, and knowing that no mistake can be made in choosing Garford Dependable Transportation, Garford distributors urge immediate action in securing motor equipment.

Garford presents new achievements, new improvements to purchasers of Dependable Transportation. Speed, Safety, Reliability, Economy of Operation—all are developed to a new high point.

In addition, Garford Equipment carries with it Garford Service which means greater convenience and greater economy through years of satisfactory performance.

Garford Engineers gladly co-operate with you in giving prospective buyers automotive advice and service.

All alliances with Garford at this time is a matter well worth investigation and considering seriously.

May we give you detailed information in confidence? Write or wire our factory.

The Garford Motor Truck Company, Lima, Ohio

Manufacturers of Motor Trucks, 1 to 7½ tons.

GARFORD

DEPENDABLE TRANSPORTATION

Ohmer Company Acquires American Taximeter

Culminating several months' negotiations, the Ohmer Fare Register Co. of Dayton, Ohio, has acquired the entire business of the American Taximeter Co. of New York City. The manufacturer of recording devices for use on every kind of transportation car or vehicle, is to be concentrated at the plant of the Ohmer Fare Register Co. at Dayton. Additional machinery and equipment will be installed and more skilled clock and instrument builders engaged.

The Ohmer Fare Register Co. was organized in 1902 as the successor to the Ohmer Car Register Co. and has widely distributed its fare registers for city and interurban railways and its receipt printing and issuing taximeter for taxicabs.

The American Taximeter Co. was started in 1910 as a consolidation of the Jones Taximeter Co. and the Franco-American Co. This company has also been a large manufacturer of the Dreadnaught Hub-O-Dometer, a mileage recording device that is installed on the hub of any vehicle and the Dash-O-Dometer, an instrument devised to provide an accurate check on operating expenses of motor transports. This latter instrument will fill the needs of one branch of the commercial vehicle industry for which the Ohmer Truck Auditor is not intended.

While most of the manufacturing formerly conducted at the New York plant of the American Taximeter Co. will be transferred to Dayton, the office, sales service and supply distribution headquarters for the eastern division of the Ohmer Fare Register Co. will be retained in the Locomobile Bldg. at 16 West 61st St. at Broadway, New York City.

Electric Truck Joint Exhibit for N. E. L. A. Convention

Believing that a joint exhibit will do a great deal more than individual showings to emphasize that the electric truck manufacturers are primarily interested in selling electric truck transportation for that class of work to which it is best suited, and that they are standing together to impress the central stations with the importance to them of a battery charging load, the National Electric and Lighting Association announces an electric truck joint exhibit to be held in conjunction with the annual convention at Atlantic City, N. J., May 19 to 23.

The forepart of the joint exhibit, covering an area of 105 x 34 ft. will be devoted to charts indicating wherein the power companies may accelerate electric truck business by lending their co-operation in terms of sponsorship. This section of the exhibit will further aim to present a better appreciation of the importance of delivery and the logical application of the electric truck, as well as the advantages accruing to the central power companies from a battery charging load.

Co-operating with the electric truck manufacturers, The Society of Electrical Development and the Transportation

Bureau, N. E. L. A., are lending their efforts and will conduct that part of the exhibit designed to sell the idea of electric truck transportation. As a background to this general idea material, twelve electric trucks, equipped with a diversity of chassis will be lined up along the full 105 ft. length.

Plans indicate that the Electric Truck Joint Exhibit will be one of the outstanding features of the many displays on the Million Dollar Pier and the manufacturers of these units anticipate new central station sponsorship for electric trucks, where they are applicable, as a result of the activity at this time. Realizing that the central stations are also interested in the users' angle, material will be available to emphasize the cost of deliveries in those industries having short-haul, frequent stop delivery problems.

Santee and Kroh With Chevrolet Company

C. W. Santee and A. R. Kroh, who have been connected for the past five years with the Goodyear Tire and Rubber Co., in sales promotion work have been added to the staff of the Chevrolet Motor Co.

Mr. Kroh is very well known throughout the automobile industry as a public speaker along inspirational and sales promotion lines. He has addressed audiences of automobile dealers, tire dealers, bankers, and civic organizations in every state in the Union and his services have been in constant demand. He will continue to work along this line with particular reference to the development of Chevrolet retail sales and as manager of the Retail Development Division, will create and supervise an organization to extend his work among the 7,000 Chevrolet dealers and their retail selling organizations.

Mr. Santee has been made manager of the Educational Division to carry out the Company's policies to build up its distributive program through education and information of retail salesmen, service men, dealers, and the wholesale organization of the Chevrolet Motor Co. This work will be carried on by means of printed and illustrated correspondence course; prepared especially by the Chevrolet Motor Co. for its own use; also by means of fully equipped service schools maintained at all assembly plants and at the Detroit Headquarters; also by the use of educational motion picture films. The work will further be extended by local meetings addressed by members of Mr. Kroh's organization and by the factory representatives of the company.

The Ward Motor Vehicle Co., Mount Vernon, N. Y., is now featuring some of its electric truck models without battery cradles. These are to be offered at a slightly lower cost, the weight is less and the trucks require less garage space. Other advantages claimed are greater ground clearance, lower frame, more accessible battery and slightly increased battery size.

Battery Manufacturers' Association Organizes

Eighteen battery manufacturers were represented at Chicago, March 21st, at the organization meeting of the Battery Manufacturers' Association, which was held at the Congress Hotel. The need of supporting the battery dealer in constructive merchandising methods was the keynote of the meeting, the basic idea of charging for battery service being unanimously favored. To attain this ideal in the individual battery shop, it was also brought out that local associations of battery men should be fostered and that advertising copy directed to the dealer should deal with this question, while advertising to the car owner should serve to educate the public to pay a fair price for good service rendered.

The following officers were elected: President, D. H. Kelly, U. S. L. Battery Corp.; first vice-president, R. B. Crane, Cooper Storage Battery Corp.; second vice-president, R. D. Mowry, Universal Battery Co.; treasurer, T. A. Bartlett, Cole Battery Corp.; secretary, C. A. Englert, Englert Mfg. Corp.; directors, F. V. Brown, Amplus Storage Battery Co. and A. R. Campbell, Wright Battery Co.

A resolution was passed requesting the management of the National Automotive Service Convention to set aside one day of the May meeting in Detroit for the discussion of problems relating to electrical service.

A membership committee was appointed and their recommendation as to membership was approved. Active members shall be those manufacturers who actually make plates and assemble them into completed storage batteries. Associate members shall be composed of manufacturing companies allied with the storage battery industry, not eligible to active membership.

Ward LaFrance Truck Undergoes Reorganization

There has been a reorganization of the Ward LaFrance Truck Corp., Elmira, N. Y. Ward LaFrance, formerly connected with the LaFrance Truck Corp., becoming president and Joseph G. Grossman, president of the Fayette Motors Corp., the Metropolitan distributor of the truck, secretary and treasurer. They will continue the manufacture and sale of the Ward LaFrance trucks, which will be made in three models—2B, 2½ to 3½ ton; 4A, 3½ to 5 ton; and 5A, 5 to 7 ton. Prices have not as yet been announced.

Stockholders of Hayes Wheel Approve Acquisition

Stockholders of the Hayes Wheel Co., Detroit, have approved the acquisition of the Hayes Motor Truck Wheel Co., Albion Bolt Co. and the Morrison Metal Stamping Co. as proposed through the issuance of new Hayes Wheel Co. stock and its exchange for stock in the companies indicated.

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In Selling Transportation

After you supply the size and style of truck that best fits your customer's needs—after that, the owner judges his "buy" by the *amount* of transportation bought.

By his records of *mileage*, the owner measures his transportation. He gets the right figures—the right line on his truck—from a

Veeder

HUB ODOMETER

Not only does the "Veeder" hold the yardstick on mileage; it gets *more* mileage for the money spent in operating.

It shows costs-per-mile, and so begets more careful driving and cheaper *coverage* of the miles.

REGULAR MODEL (list) \$20.00

FORD TRUCK MODEL \$15.00

Informative circular on request

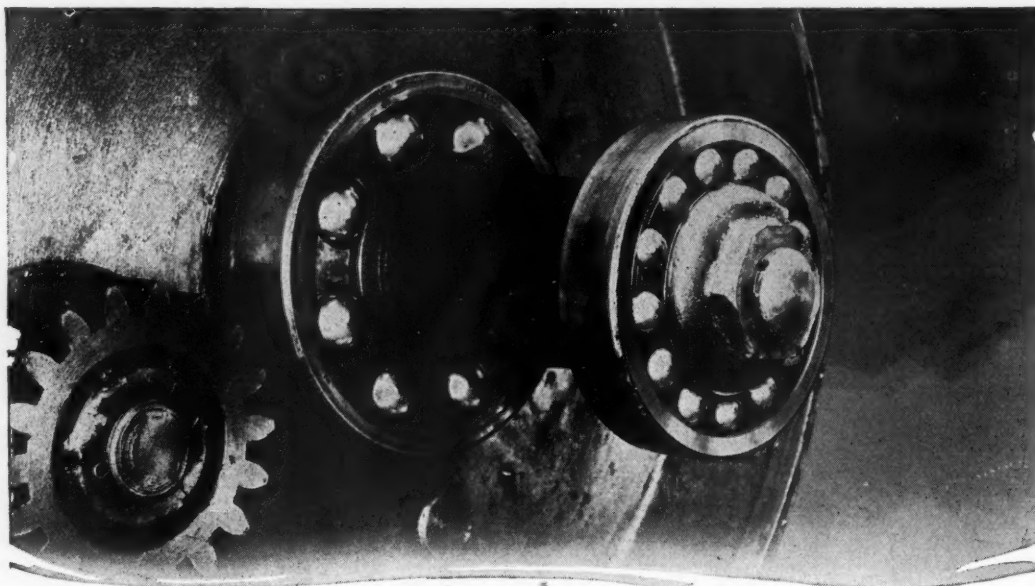
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Ball Bearings on Rear Axles Reduce Wear—Maintain Original Settings

SUBJECTED to severe tests by a leading truck manufacturer, two Skayef self-aligning bearings on each wheel of the Five-Ton rear axle shown indicated no appreciable wear after running over 20,000 miles. Original settings of rotating parts were maintained despite the severe and varying strains of road shocks.

Friction is practically eliminated by Skayef self-aligning ball bearings. Two rows of hard steel balls roll between hardened races of

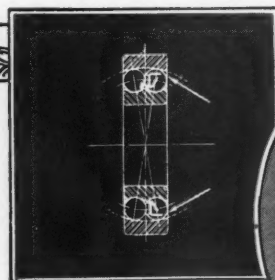
steel—the inner race, balls and retainer being free to operate at any angle, compensating for any drive-shaft deflections or misalignment. The free running qualities of the bearing permit easier starting of heavy loads and greater coasting.

The proven stamina of Skayef ball bearings under severe conditions has led to their extensive use on automotive equipment of all kinds. Our engineers will be pleased to furnish further details.

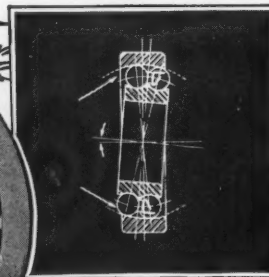
THE SKAYEF BALL BEARING COMPANY

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1141



Normal View



Deflected View